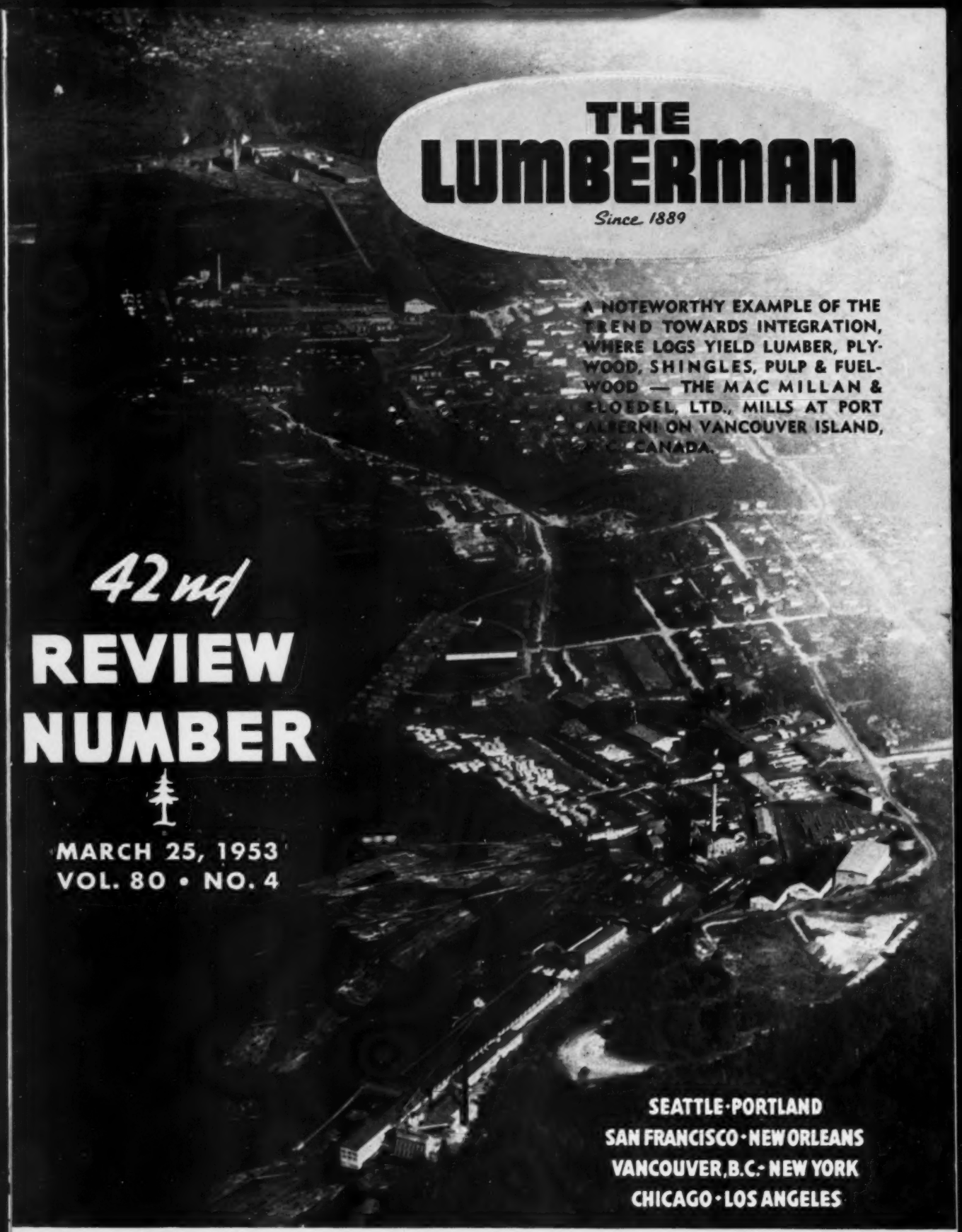
THE LUMBERMAN

Since 1889



A NOTEWORTHY EXAMPLE OF THE TREND TOWARDS INTEGRATION, WHERE LOGS YIELD LUMBER, PLYWOOD, SHINGLES, PULP & FUELWOOD — THE MAC MILLAN & BLOEDEL, LTD., MILLS AT PORT ALBERNI ON VANCOUVER ISLAND, B.C., CANADA.

42nd REVIEW NUMBER

MARCH 25, 1953
VOL. 80 • NO. 4

SEATTLE · PORTLAND
SAN FRANCISCO · NEW ORLEANS
VANCOUVER, B.C. · NEW YORK
CHICAGO · LOS ANGELES

The Production Journal of the Forest Industries

"None can compare with 'Caterpillar'"

. . . JOSEPH J. BLIMKIE

THERE's a saying among Canadian sawmill men: "The deeper you go in the bush, the more you need a 'Cat' Diesel Engine."

At Chalk River, Ontario, Joseph J. Blimkie uses a "Caterpillar" D318 Engine to power his entire mill. It drives a 48-inch saw, double edger, live rollers, trimmers, slab saw and conveyors, turning out an average of 10,000 bd. ft. per day. The D318 costs 15% less to operate than the previous power used, but its main advantage is steady-running *reliability*. When you're a long way from sources of supply, that's important.

Says Mr. Blimkie: "I've operated many different makes of engines but none can compare with 'Caterpillar'."

To fit the requirements of your job you can choose from a full range of these sturdy engines, all the way up to 500 HP. And every one of them has long life and dependability built in. Talk over your power problems with your "Caterpillar" Dealer. He can show you ways to put more profit in your operation.

CATERPILLAR, SAN LEANDRO, CALIF.; PEORIA, ILL.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

Call your G&K Distributor for *better* Power Transmission

Your Graton and Knight Distributor offers complete service and is ready to answer your requirements for:

More Production-Power with G&K leather belting engineered to fit your needs.

Easier Maintenance with top quality G&K lacing, cements and belt dressings that keep your belts pulling for you.

Help in Solving Belting Problems: Distributors' representatives and G&K engineers are at your service to help you get *more production-power.*

Say G&K for Flat Leather Belting

G&K Flat Leather Belting is tension cemented by a patented process, waterproof-treated and mildew-proofed. There's a brand for every service.

Heart Oak—top grade center stock oak tannage for lateral firmness and real pulling power. Famous general purpose belting . . . ideal for heavy duty, step-cone and shifter drives.

Research® — special tanning and currying insure highest coefficient of friction, great flexibility and resilience with minimum permanent stretch. Ideal for short center and serpentine *precision* drives.

Spartan® — special quality combination tannage and currying. Top pulling power with great flexibility and minimum stretch. Resists steam, oil, acid and alkali fumes.

Special Leather Belting

Spar-Oak, Chrome and Chrome Oak leather belting are processed to deliver more production-power under special conditions. All are mildew-proofed and can be waterproof treated.

Lace Leather

Three famous brands — Indian Tanned, Royal Worcester® and Black Chrome. Each provides the greatest strength and longest life under those operating conditions for which it is recommended.

Round Leather Belting

Whatever your application there is a G&K round leather belt made for the job. Acorn®, Hairound®, Velvitan, Patent Built-up and Folded Twist are dependable for long life and steady performance.

Leather V Belting

Adjustable link construction belting is available in single or double V for no-stretch performance on straight or serpentine drives. Spartan® Block V, Solid V and Laminated V are all easily made endless.

Ask him for your free copy of this BELTING CATALOG

This manual tells you how to select, install and maintain all types of leather belting.

STOP BELT SLIP
PROLONG BELT LIFE

THE ORIGINAL BELT DRESSING IN A SPRAY CONTAINER

Stop belt slipping the safe way by spraying them with famous SPRAZ-ON. Easy, neat and economical for flat, V and round belting of leather, rubber or fabric. One can holds 12 oz., covers approximately 350 sq. feet of belting.

GRAKO IN BULK

is available in 5-gal. and 50-gal. drums — also in pint, quart and gallon cans.

G&K BAR BELT DRESSING

made from tested ingredients, will reduce belt slipping immediately. Two sizes: large "One Pound" bar and Handy bar.

BELT CEMENTS

"For strong, flexible laps and plies, specify Neptune® for waterproof or Royal Worcester® for quick drying.

Graton & Knight Company

Established 1851

Worcester 4, Massachusetts

GRATON AND KNIGHT ®

World's Largest Manufacturer of Industrial Leather Products

8-6

THE LUMBERMAN
Since 1889

The Production Journal of the Forest Products Industries Since 1889

MARCH 25, 1953 **VOLUME 80, NUMBER 4**

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"Easiest and toughest piece of machinery I've ever run"

ERNEST MOORE
Prineville, Oregon

THAT'S saying a lot for any machine, but that's only part of the picture. Speaking of his Cat D4 Tractor with matching No. 4A Bulldozer, Ernest Moore goes on to say: "Just two days ago, it was 21° below, yet my D4 started easy. It steers easy and quick — and it stands a lot of abuse. All I've spent since I got it in 1948 is $3.25 for compression release lever. For my work it's just right. I couldn't ask for anything better."

Mr. Moore works his D4 hard 12 months a year — 12 hours a day in the summer, 7 hours a day in the winter. Here it's skidding 1,200 bd. ft. of Ponderosa pine from woods to landing near Mill Creek, Oregon. Biggest single log it skidded was 3,100 bd. ft. Besides skidding, this rig loads trucks. And its No. 4A Bulldozer also equips it to clear snow and build and maintain roads. The 'dozer handles easy, too. Angling it into any one of three positions is just a one-man operation!

There's a lot more to be said about the advantages of this rig — and your Caterpillar Dealer's the man who's got all the facts. He's also got the skilled mechanics and genuine Caterpillar parts to back it up, when necessary, with the kind of service that keeps down-time to a minimum. Ask him today for a demonstration.

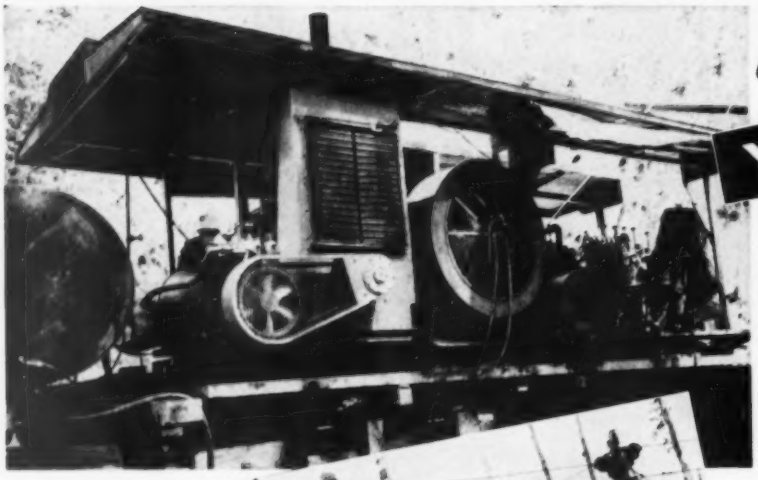
CATERPILLAR, SAN LEANDRO, CALIF.; PEORIA, ILL.

CATERPILLAR
REG. U. S. PAT. OFF.

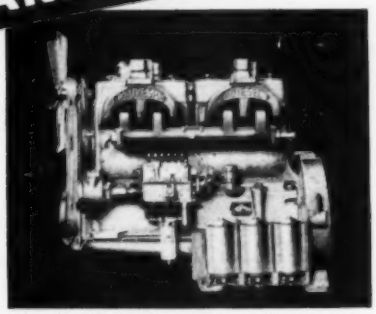
DIESEL ENGINES
TRACTORS • MOTOR GRADERS
EARTHMOVING EQUIPMENT

WAUKESHA

LOGGING ENGINES for every lumbering need



YARDING



Diesel or Carburetor Engines—Yarder shown powered by 6-WAKD Super Duty Diesel, 6¼-in. x 6½-in., 1197 cu. in. displacement.

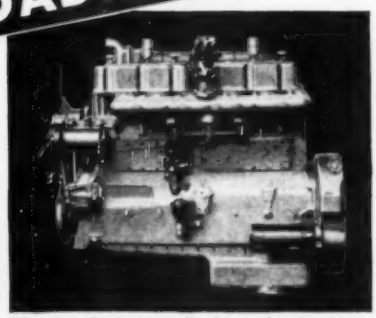
Send for
BULLETIN 1079
—it gives complete line of Waukesha Logging Engines—Diesel... Gasoline...LPG—10 hp to 570 hp with all speed and load ratings.

•

WAUKESHA MOTOR COMPANY
WAUKESHA, WISCONSIN
New York • Tulsa
Los Angeles

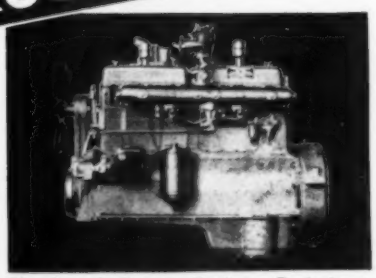
205

LOADING



Diesel or Carburetor Engines—Loader shown powered by 145-GK High Output Gasoline Engine, 5¼-in. x 6-in., 779 cu. in. displacement.

TRUCKING



Diesel or Carburetor Engines—Truck shown powered by 140-GZB High Output Gasoline Engine, 4⅛-in. x 5½-in., 554 cu. in. displacement.

DON'T BUY

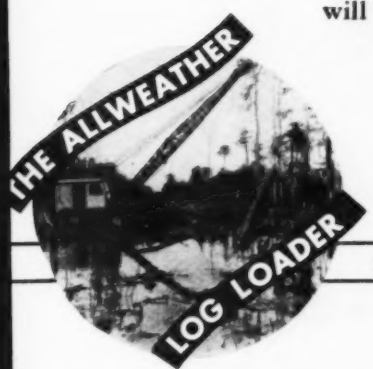
Northwest Convertible Log Loader loading out logs with Rees-Berger air tongs for the Warm Springs Lumber Co., Warm Springs, Oregon.

A ONE-PURPOSE LOG LOADER

IT takes a lot of advantages to make an all 'round logging tool. You'll find your Northwest is more than a Log Loader. It brings you a versatility that no one-purpose machine can give you. Convert it to a Shovel (it is easily and quickly changed over) and you have a *real* Rock Shovel that will handle tough mountain road work. As a Crane it will take care of the jobs at the mill—wherever lifting is the problem. As a Dragline you have an answer to drainage problems that cause road breakdown.

Northwest versatility fits Northwest equipment to all of your handling and construction problems and at the same time brings added value to the man that buys it from you. Now is the time to learn about Northwest advantages. Familiarize yourself with Northwest travel, the "Feather-Touch" Clutch Control, the Cushion Clutch, Uniform Pressure Swing Clutches and above all—Northwest Convertability. A Northwest man will be glad to explain these features to you.

NORTHWEST ENGINEERING COMPANY
1510 Field Building, 135 South LaSalle Street, Chicago 3, Illinois



NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

NORTHWEST SALES OFFICES:

SEATTLE, WASHINGTON
1234 Sixth Avenue South

SAN FRANCISCO, CALIF.
255 Tenth Street

LOS ANGELES, CALIF.
3707 Santa Fe Ave.

Grandview Logging Co., Vancouver Island, B.C., skids 10 loads (70,000 bd. ft.) per day over average 1¼-mile distance with their Tournaskidder. This output is double that of crawlers.

Do more work YEAR-ROUND

Tournaskidder's rubber-tired speed and flexibility will extend your logging range... handle maintenance faster

At Ladysmith, British Columbia, Comox Logging Company's Tournaskidder cleans out a landing. Big electric-control blade carries about 2½ cubic yards of material per pass.

186 hp ... 37,000 lbs. of weight ... plus 4-wheel drive on rubber give Tournaskidder plenty of power and traction to clear drifted roads at 10 to 19 mph. Photo was taken in Saskatchewan.

Angledozer—Trademark Reg. U. S. Pat. Off. Tournaskidder—Trademark K-269-L

LETOURNEAU LET EQUIPMENT

Why crawl when you can RUN?

Designed to logger specifications to meet western logging conditions, modern Tournaskidder will put greater speed, economy and versatility into your operation. This big, powerful bullcooker drives anywhere to handle production or maintenance jobs. Built into LeTourneau's Tournatractor prime-mover and teamed with rubber-tired logging arch, it meets skidding assignments fast . . . with (or without) arch, it drives anywhere at speeds to 19 mph to do cold-decking, dozing, and hit-and-run maintenance tasks. Rig travels on or off logging property via paved roads, rail right-of-way, or cross-country. It eliminates loading, blocking, unloading, costly waiting for trailers.

Faster, longer skids

Because Tournaskidder *runs* instead of *crawls,* it speeds travel to log pickup anywhere on your show . . . even where travel over narrow skidways and up steep mountain roads is necessary. Its 2-speed electric winch has a 67,000-lb. line pull to drag in big loads. Winch can be operated in or out *while Tournaskidder is stationary or in motion.*

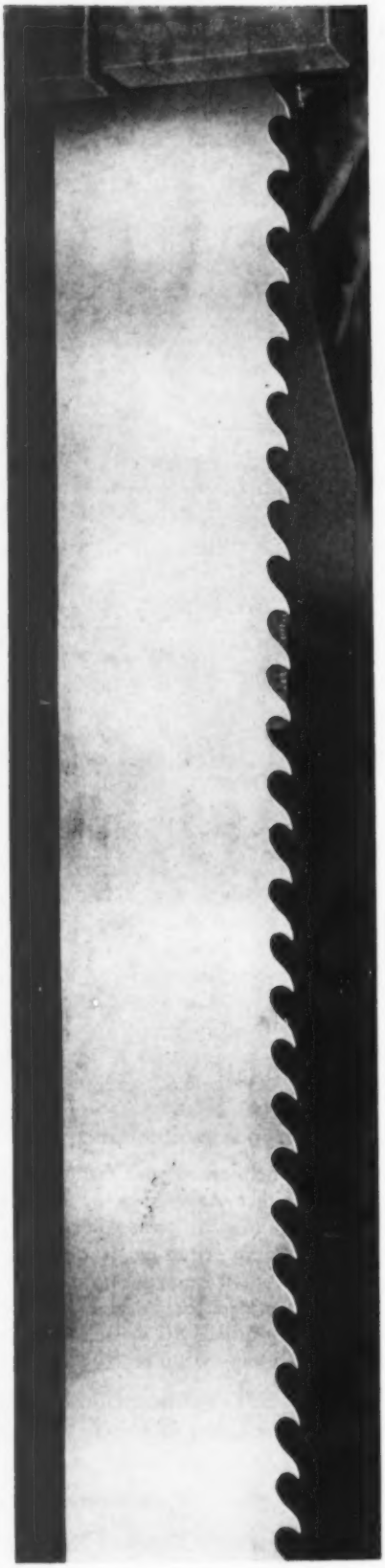
And once on the move, there's no stopping to shift. Operator shifts through 4 forward gears of the constant-mesh transmission with flick of small lever . . . loses no vital momentum . . . puts 186 hp to work on all 4 wheels for steady power on level ground or up steep grades. If you must work in mud, sand, or snow, you'll find that Tournaskidder's 21.00 x 25 low-pressure tires give you exceptional traction and flotation. In almost all materials, tires wear longer than tracks, too. And they eliminate costly repairs and the time-consuming maintenance necessary with the 400 to 500 parts of an average track assembly.

Speeds woods maintenance

These advantages also help speed your maintenance jobs. Tournaskidder, with either Angledozer or Bulldozer, is quickly available to deck logs . . . open skidways . . . build and maintain haul roads . . . clean out landings . . . pull stalled equipment . . . plow snow . . . do many other "handyman" tasks. It is tops for emergency lighting or temporary equipment operation. Rig's electric control system can be hooked up to supply 120 or 220-volt electricity.

But see for yourself. Your LeTourneau Distributor will be glad to show you Tournaskidder in action. Call him . . . there's no obligation.

R. G. LeTOURNEAU, INC.
PEORIA, ILLINOIS



Speed Production
with HOE Wide Band Saws

Whether for head rig, resaw or rip saw, your HOE Distributor can furnish you with a Hoe Band Saw of just the right width and gauge, and with the correct tooth spacing, to meet your individual requirements.

Taking the heaviest feeds with ease, in the fastest cutting mills, Hoe Wide Band Saws assure maximum production.

Made from a special steel, the toughest ever produced, they are unequaled for edge and tension holding, and require minimum servicing.

And they are so expertly ground and finely finished that their thickness is uniform throughout their full length.

R. HOE & CO., INC.

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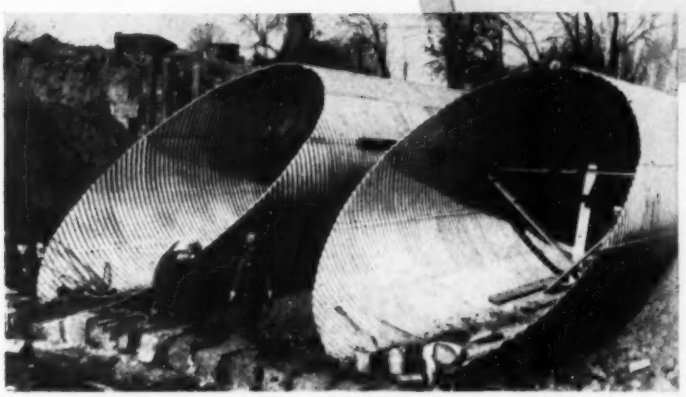
CHISEL-TOOTH SAWS • BITS AND SHANKS • SOLID SAWS • BAND SAWS • KNIVES • FILES

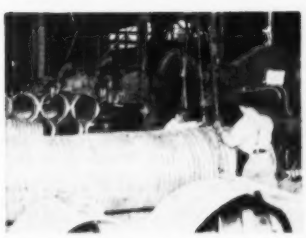
BEALL can help YOU solve road drainage problems *economically!*



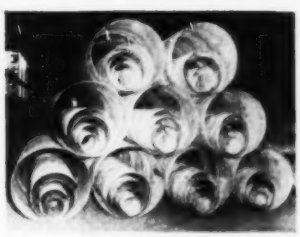
BEALL'S CORRUGATED CULVERT MEETS ALL SPECIFICATIONS FOR LOGGING ROAD CONSTRUCTION

- **Easy to lay...lasts for years.**
- **In full-round, arch and sectional.**
- **Complete range of sizes and lengths to fit any road job.**

In view of today's rigid construction requirements, logging companies find BEALL Corrugated Culvert Pipe ideally suited to meet every drainage problem encountered in truck logging road construction. Now, as in the past, you can *depend* on Beall for the latest developments in design and engineering, quality products and prompt delivery. If you have a drainage problem, meet it the easy way ...take it to Beall...for Beall can promise an economical solution.



Beall's modern equipment can turn out corrugated culvert quickly to meet Northwest logging operators' needs



Beall makes corrugated culvert for any logging drainage operation...from 8" to 120"...by the length, by carload.

Here Are Some of Beall's Many Products

Corrugated Culvert
Welded Pipe • Storage Tanks
Truck Tanks,
A.S.M.E. Code
and Water Tanks
Gasoline, Oil and
Asphalt Transports
Logging Trailers • Machinery Trailers

For Complete Information Write or Wire

BEALL PIPE AND TANK CORP.

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(Site of Oregon Shipyard) UNiversity 3631

NOW! 2 NEW HYSTER® LIFT TRUCKS

Extra-Rugged for "INSIDE and OUTSIDE" Work ...in the LUMBER INDUSTRY

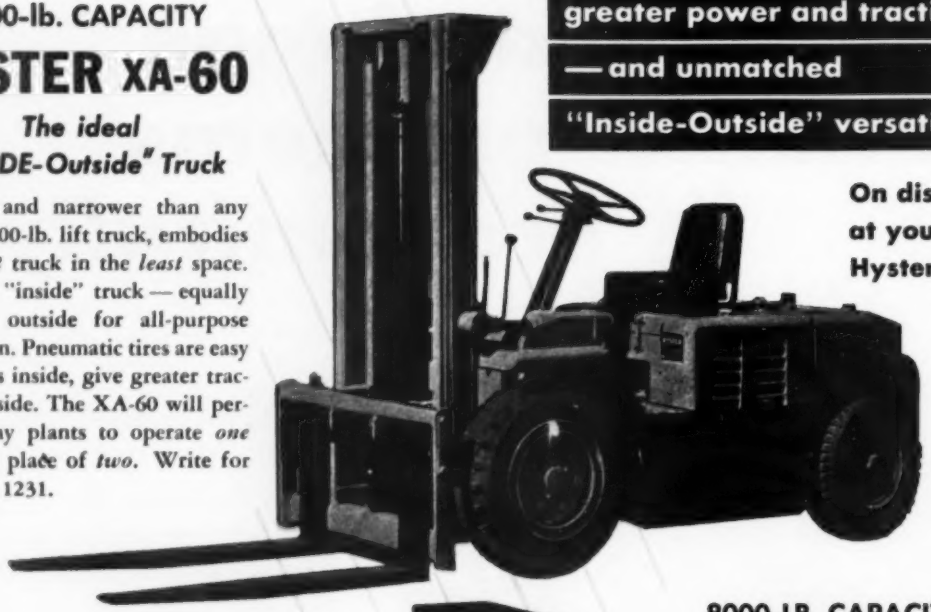
Shorter, Narrower, Faster—with greater power and traction —and unmatched "Inside-Outside" versatility!

6000-lb. CAPACITY

HYSTER XA-60

The ideal "INSIDE-Outside" Truck

Shorter and narrower than any other 6000-lb. lift truck, embodies the *most* truck in the *least* space. A great "inside" truck — equally efficient outside for all-purpose operation. Pneumatic tires are easy on floors inside, give greater traction outside. The XA-60 will permit many plants to operate *one* truck in place of *two*. Write for Bulletin 1231.



On display at your Hyster dealer

8000-LB. CAPACITY

HYSTER ZA-80

The ideal "OUTSIDE-Inside" Truck

Has long wheelbase, but SHORT OVER-ALL LENGTH — for smoother riding and high maneuverability. For use where most of work is *outside*, but truck is *also* required to work *inside* in close quarters. Extremely powerful, with tremendous traction, yet pneumatic tires assure maximum protection to floors. Write for Bulletin 1230.

HYSTER COMPANY

FOUR FACTORIES

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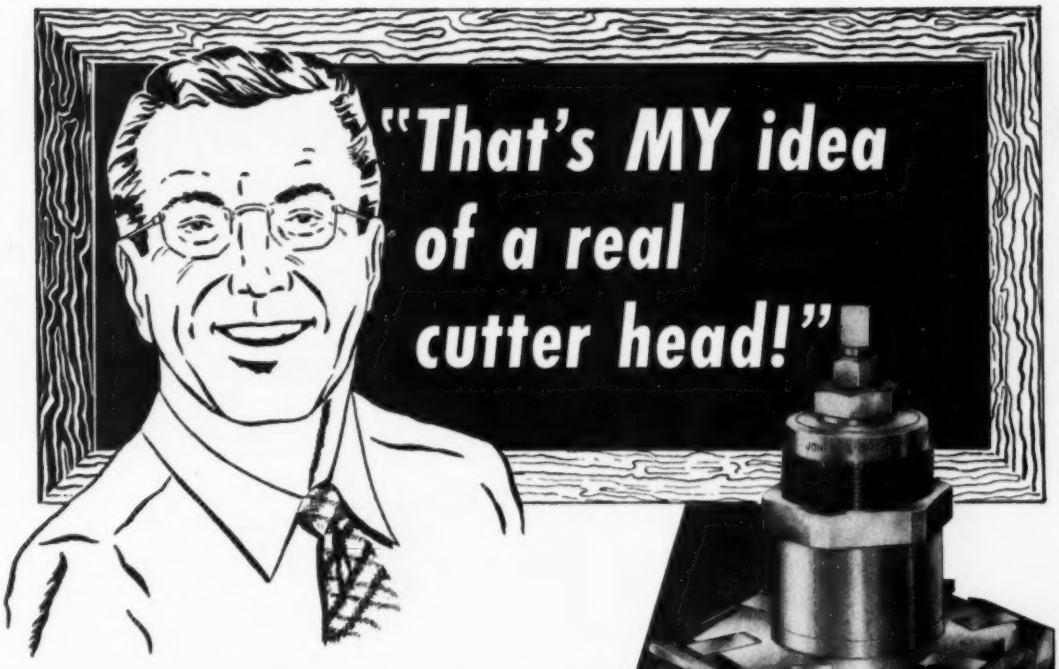
1800 North Adams...Peoria 1, Illinois
1010 Myers Street....Danville, Illinois
Nijmegen.....The Netherlands

Be sure to get the whole Hyster "Inside-Outside" story before you buy *any* Lift Truck! Ask your Hyster Dealer, or write for Bulletins 1230 and 1231.



"It's simple, always cuts true and you can't wear one out!"

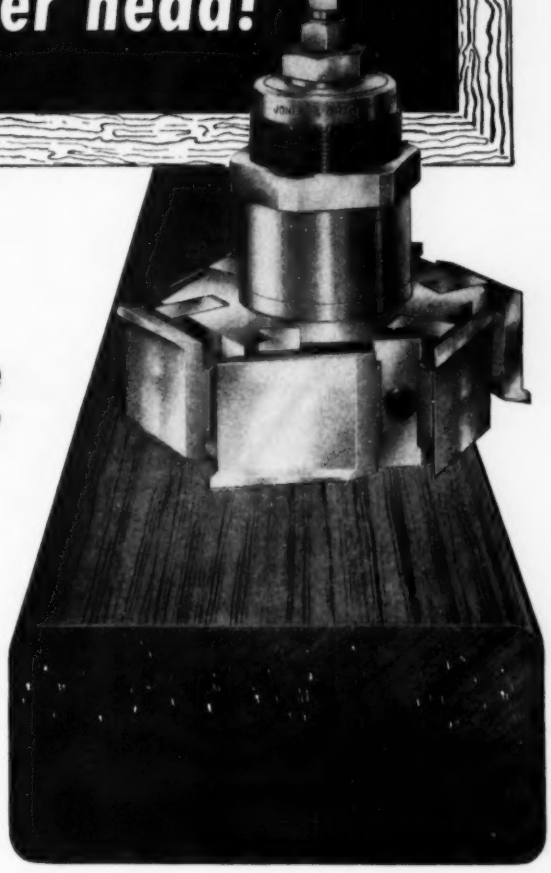
Users say: "The more you know about cutter heads, the more you appreciate the way a Jones & Orth head is made!"

When you take one apart—check its design and construction — you get a better idea of why they perform as they do.

Take our popular H-Type head for instance, such as the eased-edge model shown at the right. Knives on this head can be used right down to the last ¾ inch without change of pattern OR cutting angle!

You'll find a minimum number of parts too, and the greatest precision in adjustments plus a maximum of safety.

No wonder Jones & Orth cutter heads are the choice of so many shop superintendents with a lifetime of woodworking experience!



Find out NOW what Jones & Orth cutter heads will do for your shop! Write today for new catalog, and name of dealer nearest you. Address either our Seattle or Memphis branch!

Need specially designed cutter heads? Let our engineers help! Write us in detail. Prompt service!

JONES & ORTH

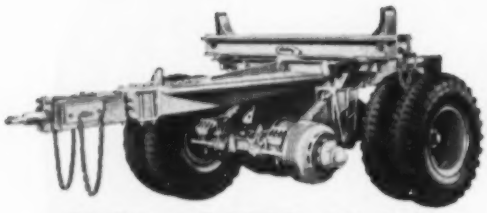
CUTTER HEAD COMPANY

385 SOUTH MAIN STREET
MEMPHIS 3, TENN.

BOX 3064
SEATTLE 14, WASH.

Made to Order for the Big Jobs

FRUEHAUF
"WOODS-ENGINEERED"



EVEN BETTER IN '53

New improvements make your Fruehauf Loggers a still more advantageous buy! Double-cupped spring design with improved wedge blocks prevents spring shifting under loads. And Fruehauf springs are heavier and stronger in '53 . . . provide extra heft for heavy hauls.

LOGGERS!

MORRISON LOGGING COMPANY of Aberdeen, Washington, hauls twenty-five million board feet a year across the Olympic Peninsula on Fruehauf Model TL-55 Loggers. Here's what C. V. Morrison, Secretary-Treasurer, has to say about the way his company's Fruehaufs handle the job . . .

"During more than five years of continuous hauling we have experienced no loss of operating time because of Trailer breakdowns. As for maintenance costs on our Fruehauf Loggers, we've found them to be almost unbelievably low."

Fruehauf Woods-Engineered Loggers are available in four standard capacities up to 60,000 pounds, all models providing exceptional road clearance. And all Fruehauf Loggers are quality-built of finest materials—tough I-Beam axles, massive box steel bunks and powerful king-size high-tensile steel brake drums. Contact your Fruehauf representative for complete details.

FRUEHAUF Trailers
"ENGINEERED TRANSPORTATION"

World's Largest Builder of Truck-Trailers
FRUEHAUF TRAILER COMPANY
Logging Manufacturing Plant, Seattle, Wash.
Sales and Service: Portland • Seattle • Spokane • Sacramento
San Francisco • Oakland • Billings • Fresno • Salt Lake City
Phoenix • Los Angeles • Albuquerque

COMPLETE, ECONOMICAL FACTORY SERVICE AT BRANCHES IN EVERY AREA!

Cut Your Costs with a ONE-MAN LOG LOADER

NEW OSGOOD-GENERAL ARM-TYPE AIR-TONGS

Now available with straight or gooseneck heeling boom... on crawlers or MOBILCRANES

SAVE

MAN HOURS
Machine operator loads and unloads

LIFE AND LIMB
No men required on truck or under boom

OVERHEAD COSTS
Insurance reduced (hazards removed)

PRODUCTION COSTS
Faster loading . . . more footage per dollar

5304

OSGOOD-GENERAL's Air-Operated, Arm-Type Log-Loaders are uncanny in their ability to handle large or small logs as a one-man operation.

TO LOAD: Logs do not require special placing, and can be handled from any angle, within reach of the machine. The tongs are self-energizing . . . logs are "hooked" and loaded by the machine operator.

TO UNLOAD: Self-adjusting feature of these tongs allows the operator to transfer loads from trucks to railroad cars or "cold decks." Positive, quick release—by air control—reduces log damage and "slabbing" to a minimum.

These improved tongs have undergone extensive field tests—resulting in big savings and increased production, while removing occupational hazards.

MEMBER PCSA

inquire for SALES AND SERVICE information

O-G
OSGOOD • GENERAL
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EUGENE
Western Equipment Co.
1360 W. First Ave.
Phone: 4-4265

LOS ANGELES
Electric Tool & Supply Co.
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Phone: LUcas 8151

PHOENIX
Superior Equipment Co.
2221 S. 19th Ave.
Phone: 8-4312

PORTLAND
Western Equipment Co.
2244 N.W. Savier Street
Phone: ATwater 4128

SAN FRANCISCO
Osgood-General Branch
326 Shaw Rd., So. San Francisco
Phone: Juno 3-2350

SEATTLE
Washington Machinery & Storage Co.
7329 E. Marginal Way
Phone: RA-1123

SPOKANE
General Machinery Co.
E. 3500 Block Riverside Ave.
Phone: LAkeview 1536

VANCOUVER, B. C.
Columbia Equipment Co.
2782 Grandview Highway
Phone: Dexter 6030

"Using Tiger Brand Wire Rope sure pays off," says Mgr. C. J. "Bud" Underwood of Deep River Timber Co., Deep River, Wash. "The 1" mainlines on our Skagit SJ-8 each yard and load about 4 million bd. ft.—equal to 8 million bd. ft. of single handling."

SJ-8's mainlines log an average of 8 million board feet!

Small sheaves and drums on the SJ-8 are necessary for mobility but put extra strain on lines, according to Mr. Underwood. Rigged with 600' of Tiger Brand mainline, this SJ-8, which was the second built by Skagit, yards and loads about 80,000 bd. ft. of timber a day. Logs average about 5,000 bd. ft. apiece.

"I've logged nearly a billion bd. ft. of timber—almost all of it with Tiger Brand Wire Rope," says Mr. Underwood. "As far as I'm concerned, there's nothing better." With Mr. Underwood are two Tiger Brand Representatives who, along with Field Engineers, are always available to help solve rope problems.

For any lumbering job you handle, rely on tough American Tiger Brand, the wire rope that's rigidly controlled by United States Steel from raw ore to finished product. To get all the stamina engineered into it, you're welcome to the services of a Field Specialist. Contact your local distributor or write Columbia-Geneva Steel, Room 1403, Russ Building, San Francisco 6.

USS

U·S·S TIGER BRAND Wire Rope

Columbia-Geneva Steel Division, United States Steel Corporation, San Francisco

UNITED STATES STEEL

* **PRESERVE FORMS**
* **PREVENT STICKING**

with Sherwin-Williams

KEMWOOD FORMSAVER

NOW . . . faster, longer lasting protection for plywood forms, with Sherwin-Williams KEMWOOD FORMSAVER! It's formulated for application at the mill, or on the job—and offers important advantages in concrete work to builder and contractor alike. Here's how:

SAVES TIME—KEMWOOD FORMSAVER can be brushed, sprayed, dipped, roller coated, or flow coated—forms can be wet stacked face to face without delays for drying. One treatment lasts 8 to 10 repours.

SAVES MONEY—FORMSAVER checks disintegration of plywood forms, retards delamination at the glue line, minimizes face checks, grain raise, cracking or splintering, resists abrasion of sand and gravel.

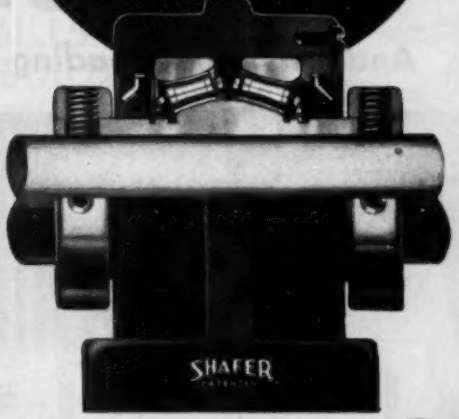
SPEEDS OPERATIONS—FORMSAVER prevents cement from sticking to the face of the form, releases freely. Just wipe the face clean and put in place for the next pour.

For full details . . . call, wire or write today!

THE SHERWIN-WILLIAMS CO.
General Industrial Div., Cleveland 1, Ohio

SHERWIN-WILLIAMS
INDUSTRIAL FINISHES

THE *Rugged* JOBS ARE "*Routine*" FOR SHAFER BEARINGS



Throughout the land Shafer Roller Bearings are increasing the nation's productive capacity—carrying big loads, saving money and power, reducing down time and maintenance costs wherever America's heaviest duty power transmission equipment is at work.

Shafer Bearings handle these tough jobs better because they are engineered to-the-job—to provide *longer life, greater dependability and lower* operating costs under the severest working conditions. Integrally self-aligned, they have full radial-thrust and greater reserve shock load capacities under all conditions of misalignment; are equipped with self-centering "Z" housing seals and Micro-Lock 12-point adjustment. See the Shafer bearing specialist near you . . . or write us direct . . . for complete information and engineering consul on a no-obligation basis. SHAFER BEARING CORPORATION, 801 Burlington Avenue, Downers Grove, Illinois.

Pillow Blocks

Flange Units

Flange Cartridge Units

Cartridge Units

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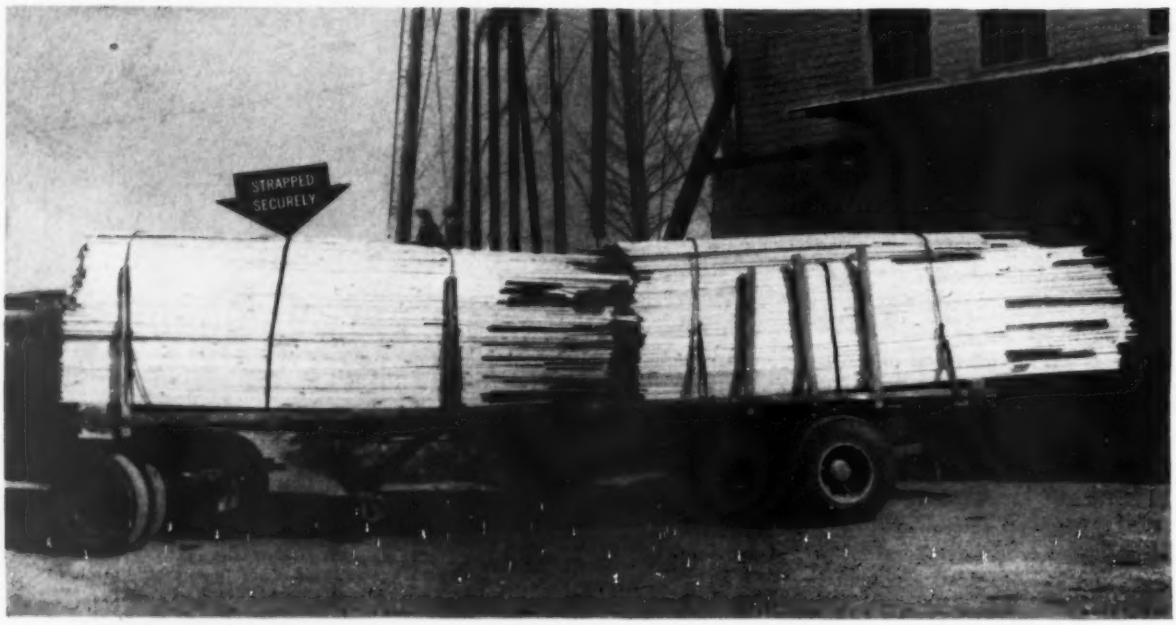
SHAFER
SELF-ALIGNING
ROLLER BEARINGS

Take-Up and Frame Units

Aircraft Control Bearings

Acme Steel Strapping Insures S.A. *(Safe Arrival)*

And cuts truck loading time 87% for lumber company



CLANCY LOWERS THE BOOM on time-consuming materials-handling operations by bundling lumber with Acme Steel Strapping and cutting truck loading time from four hours to 30 minutes.

The Clancy Lumber Company, Grayson, Alabama, tied together all the loose ends in its materials-handling operations with Acme Steel Strapping and speeded the flow of finished lumber from its mill by 87 per cent.

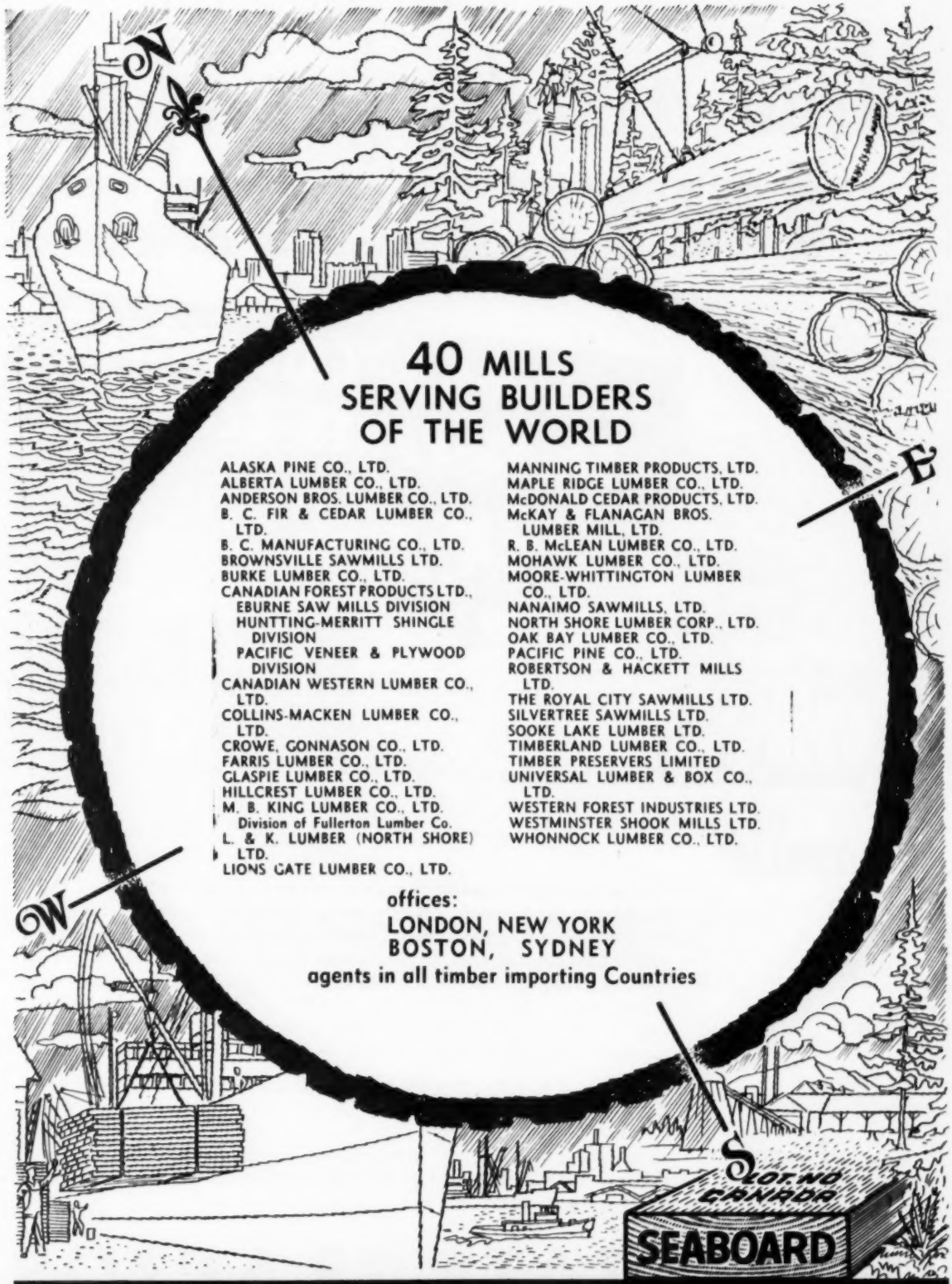
Since the mill is located 40 miles from the nearest railhead, trucks move all ready-for-market lumber. And when the Clancy trucks were hand-loaded, it took two men four hours to put 15,000 board feet on a flat-bed truck.

Now loads of equal size are placed on trucks in just 30 minutes —87 per cent faster than the old method—by using Acme Steel Strapping to bundle loose sling loads of lumber which are then moved to position on trucks.

Ask your Acme Steel representative to point out ways you can insure Safe Arrival of your products and reduce handling and hazards. Or write Acme Steel Products, Dept. L33.

ACME STEEL

Acme Steel Products Division **ACME STEEL COMPANY** 2810 Archer Avenue, Chicago 8, Ill.



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SEABOARD LUMBER SALES COMPANY LIMITED

SEABOARD HOUSE • VANCOUVER CANADA

Now ready for You—
INTERSTATE

- "CATERPILLAR"
- SKAGIT
- HYSTER
- ATHEY
- FLECO
- U.S. STEEL

We've brought Interstate service right to your back door! Our modern new branch on Highway 101 just west of Coquille isn't really a branch, it's 10,000 square feet of the most complete equipment service facilities you'll find anywhere. We are prepared to outfit, rebuild or repair any "Caterpillar" engine, tractor or earthmoving machine in the famous yellow line . . . as well as Skagit logging machinery, Hyster and Athey tractor equipment, Fleco rakes, U. S. Tiger wire rope.

Now you loggers, farmers and roadbuilders in this fast-growing industrial area will be "short-haul-close" to your own Interstate-"Caterpillar" store . . . "short-haul-close" to factory-approved parts and repair facilities, to reliable machine information, and to friendly, helpful Interstate service . . . Come in soon.

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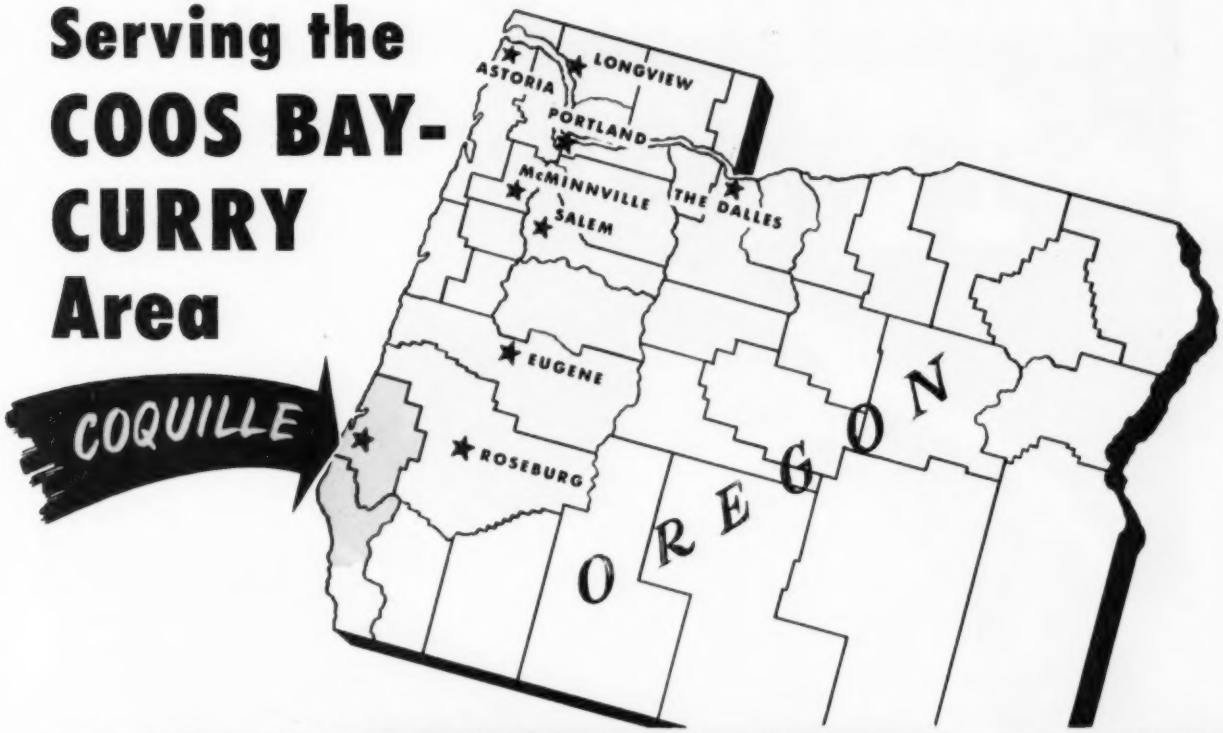
Serving the COOS BAY-CURRY Area



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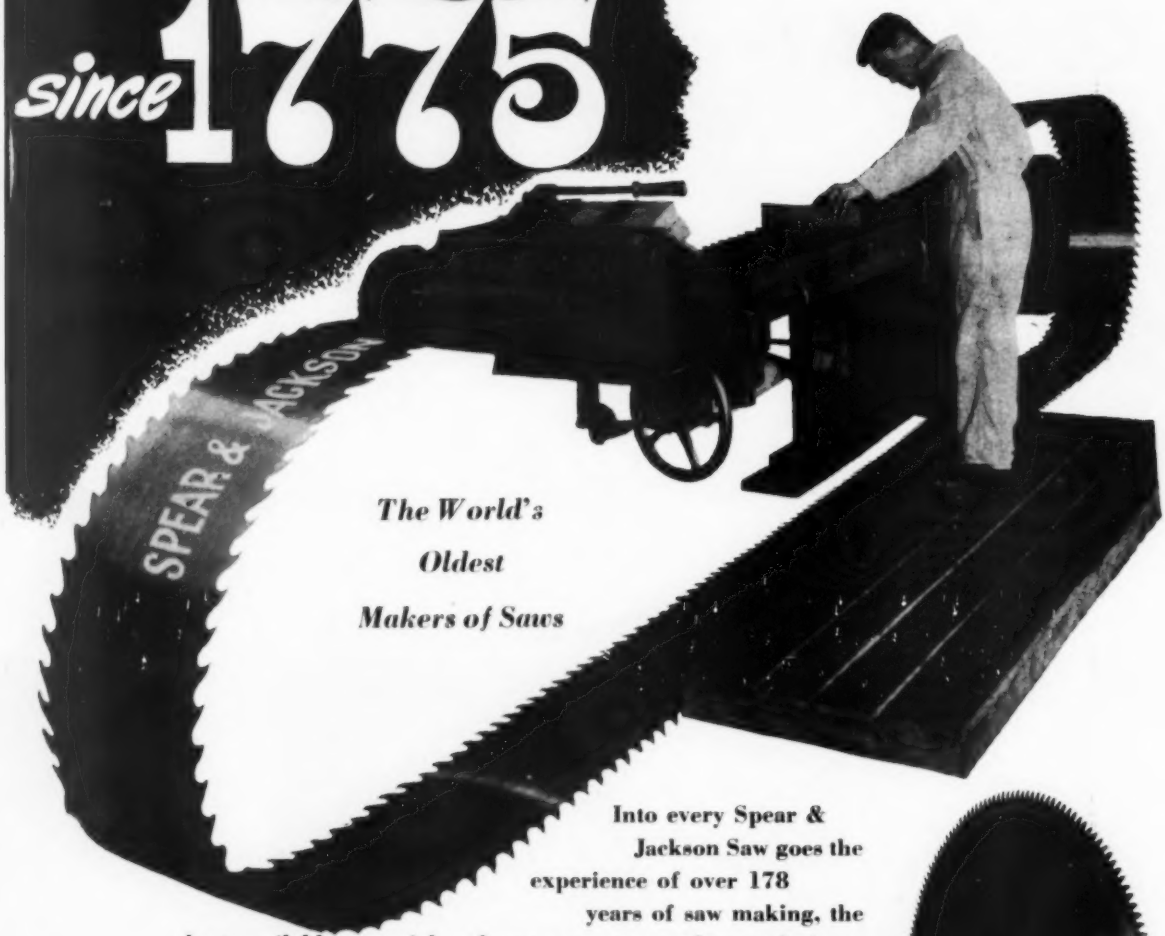
Custom Made for the Timber Trade since 1775

DEPENDABLE SAWS



The World's Oldest Makers of Saws

Into every Spear & Jackson Saw goes the experience of over 178 years of saw making, the best available material and every proven modern technique. Thoroughness in every detail of manufacture assures you of a dependable saw that does a first class job always.

SPEAR & JACKSON

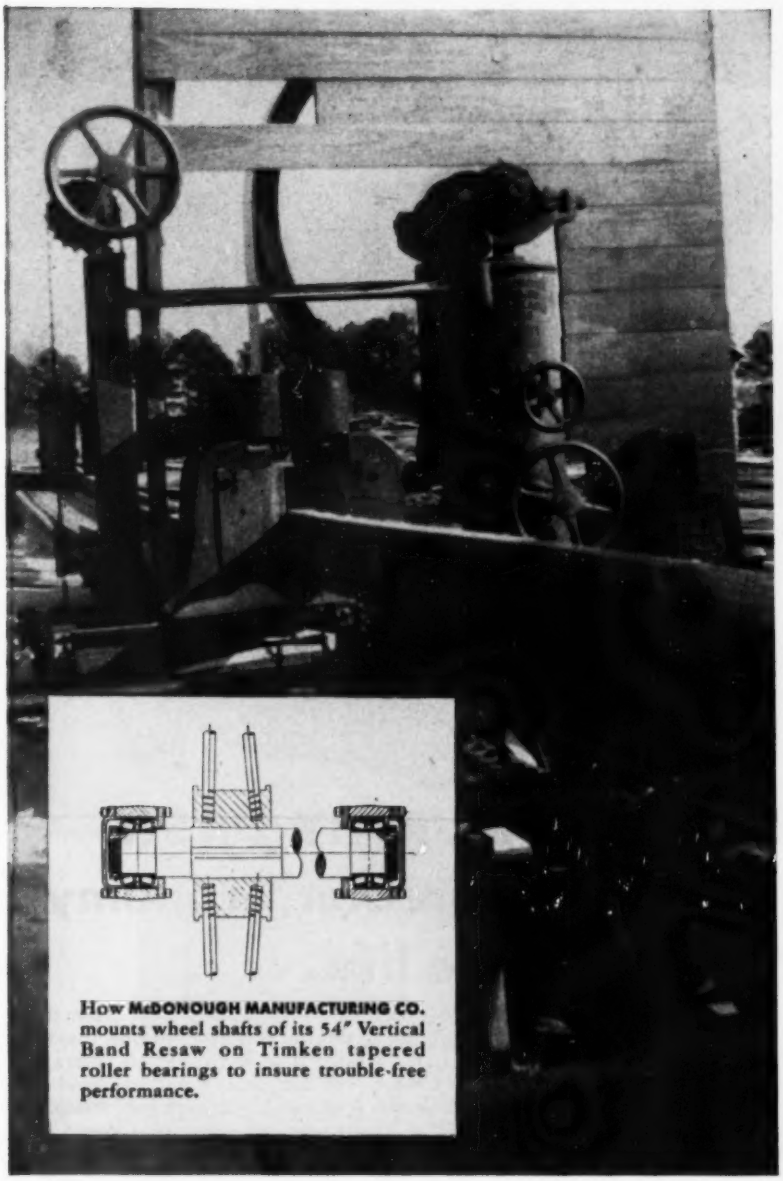
"The Saw Without a Flaw"

EUGENE, OREGON, U. S. A.

VANCOUVER, CANADA SHEFFIELD, ENGLAND

Resaws 5500 board feet per hour

...with help of TIMKEN® bearings



How McDONOUGH MANUFACTURING CO. mounts wheel shafts of its 54" Vertical Band Resaw on Timken tapered roller bearings to insure trouble-free performance.

INSTALLED outdoors, this McDonough 54" Vertical Band Resaw resaws 5500 board feet per hour. To insure long life and trouble-free performance, McDonough engineers use Timken® tapered roller bearings on the wheel shafts and feed roll drive.

Timken bearings take both radial and thrust loads in *any* combination because of their tapered design. Shafts and adjacent parts are held in proper alignment. Wear is minimized.

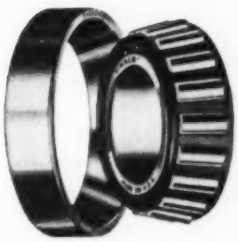
By holding shafts and housings concentric, Timken bearings make closures more effective. Dirt, dust and moisture stay out—lubricant stays in. Lubrication costs and time are reduced.

Line contact between the rollers and races of Timken bearings gives them extra load-carrying capacity. Their incredibly smooth surface finish and true rolling motion practically eliminate friction.

Made of Timken fine alloy steel, Timken bearings are precision manufactured and engineered for the job. They normally last the life of the machine.

Specify Timken bearings in the machinery you build or buy. No other bearing gives you all the advantages you get with Timken bearings. Look for the trade-mark "Timken" stamped on every bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Canadian plant: St. Thomas, Ontario. Cable address: "TIMROSCO".

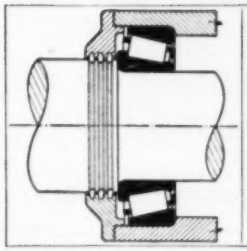
This symbol on a product means its bearings are the best.



TIMKEN

TRADE-MARK REG. U. S. PAT. OFF.

TAPERED ROLLER BEARINGS



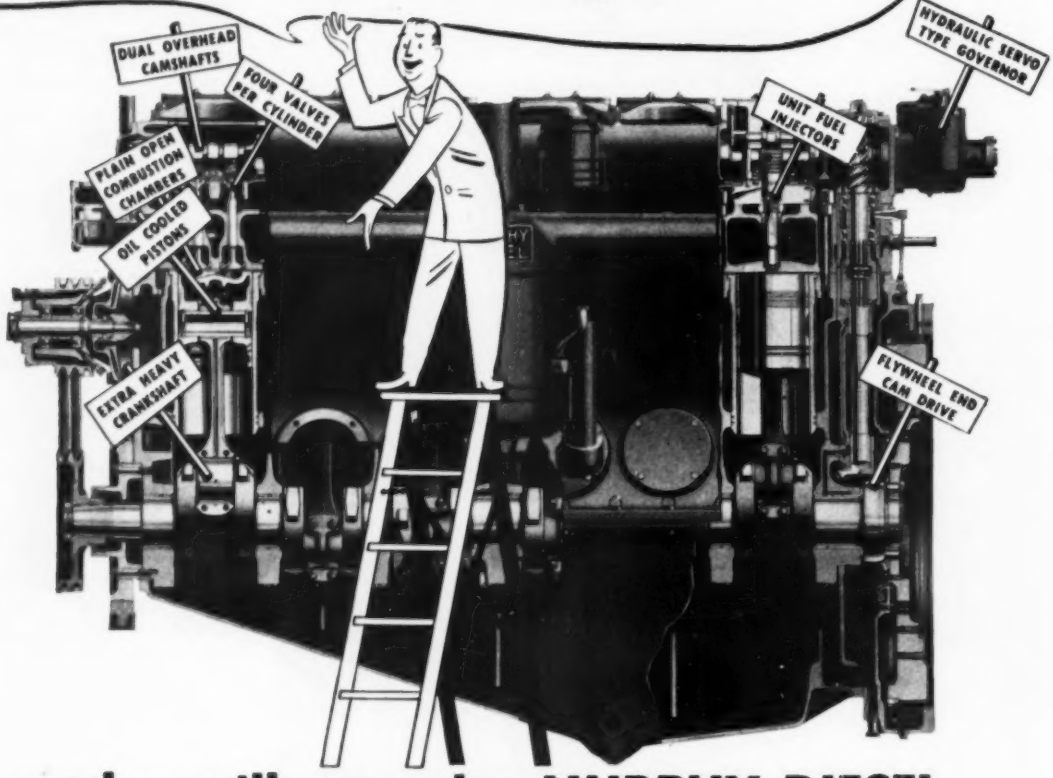
LUBRICANT STAYS IN —DIRT KEPT OUT

Because Timken bearings hold shafts concentric with housings, closures are made more effective. Lubricant is retained, dirt and moisture kept out.

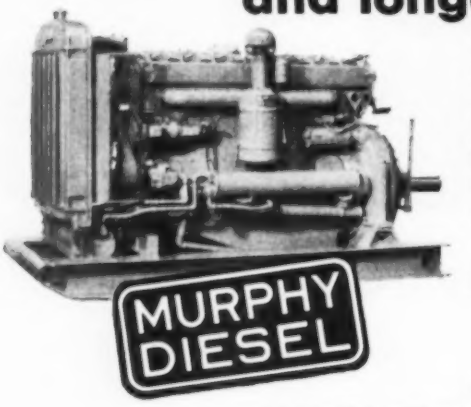
The Timken Roller Bearing Company is the acknowledged leader in: 1. advanced design; 2. precision manufacture; 3. rigid quality control; 4. special analysis Timken steels.

NOT JUST A BALL ◯ NOT JUST A ROLLER ⬭ THE TIMKEN TAPERED ROLLER ⬭ BEARING TAKES RADIAL ⬮ AND THRUST →⬮← LOADS OR ANY COMBINATION →✳←

Look inside the engine...



and you'll see why MURPHY DIESEL gives you more power, greater economy and longer engine life...



FOR the most part, engines look pretty much alike from the outside, but to really judge an engine you have to look inside. The Murphy Diesel isn't afraid of comparison. It offers a combination of proved design advantages available in no other engine. Check these features for yourself and ask Murphy Diesel owners—they'll tell you what these features mean in terms of good heavy-duty power, minimum fuel consumption and long engine life.

Additional information is given in the booklet, *"10 Questions to Ask a Diesel Engine Salesman"*. Ask your Murphy Diesel Dealer for a copy.

MURPHY DIESEL COMPANY

5351 W. Burnham Street Milwaukee 14, Wis.

Engines and Power Units, 90 to 226 H.P. Generator Sets, 60 to 140 K.W.

FOR FURTHER INFORMATION SEE YOUR MURPHY DIESEL DEALER— 237-A

Cal.-Ore Machinery Co., Inc.
944 South Central Avenue
Medford, Oregon

A. H. Cox & Company
1757 First Avenue, South
Seattle 4, Washington

Oswald Machine Works
2936 Hyde Street
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Western Equipment Company
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build
ACCESS ROADS FASTER
and at
LOWER COST with
GARDNER-DENVER
Equipment

PORTABLE COMPRESSORS—that deliver full output in any weather—at any altitude.

WAGON DRILLS—that are powerful drillers—are quickly spotted on rough terrain.

SINKERS—that drill fast—handle lightly.

PAVING BREAKERS—that make fast work of any demolition job.

Write today for full information.

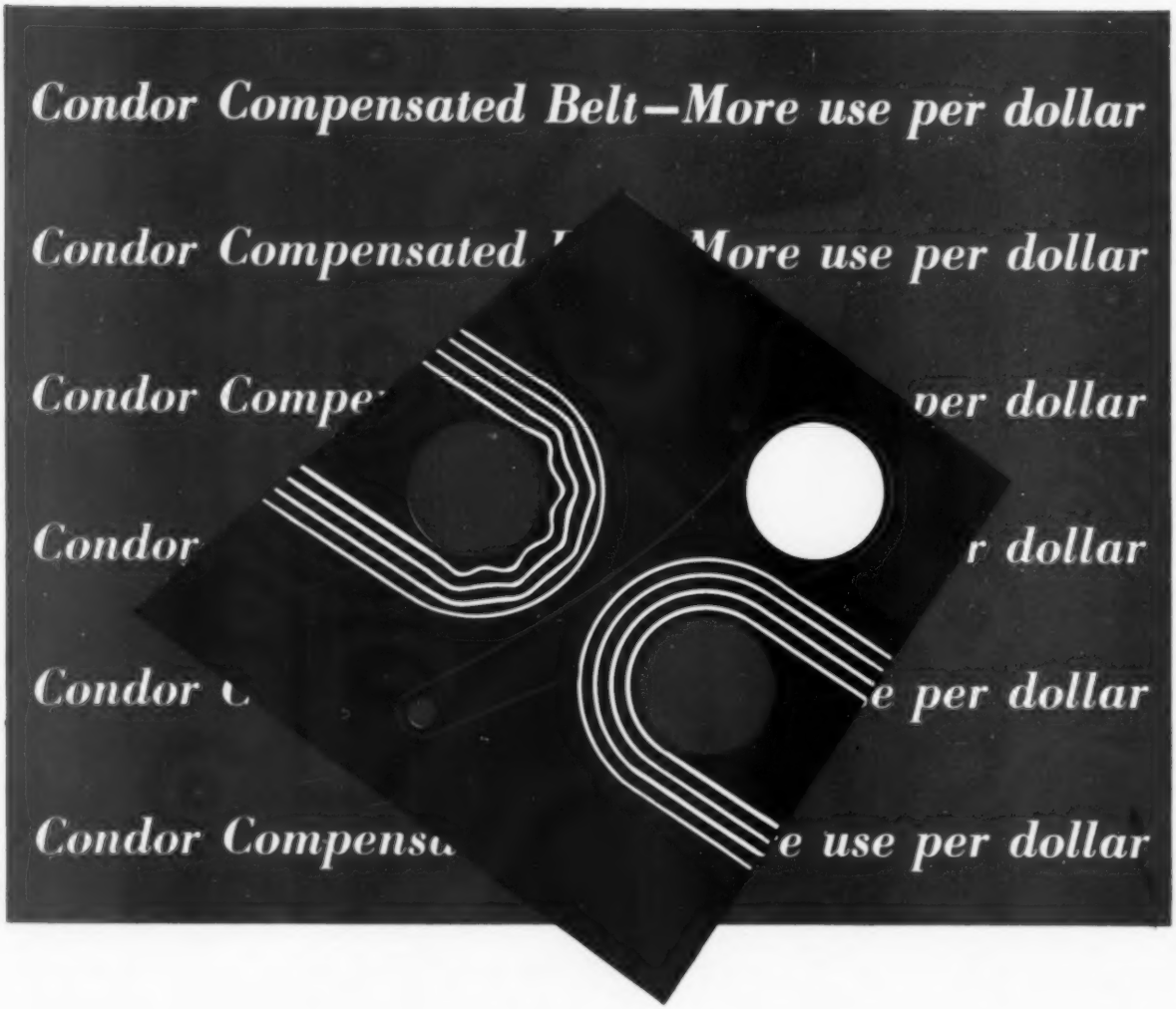
SINCE 1859

GARDNER-DENVER

Gardner-Denver Company, Quincy, Illinois

Seattle, Vancouver, San Francisco, Los Angeles, Salt Lake City, Denver and Wallace, Idaho

THE QUALITY LEADER IN COMPRESSORS, PUMPS AND ROCK DRILLS



MORE PULL IN EACH PLY . . . . When Condor Compensated Belt rounds the pulley every ply is under uniform tension (illustration, right). There are no "loafing" inner plies or over-worked outer plies to rupture and start belt failure (illustration, left). This exclusive R/M method of equalizing ply stresses was developed by R/M engineers to eliminate fastener troubles and ply separation. A selection of driving surfaces for various tension requirements is available. This all adds up to MORE USE PER DOLLAR. Ask the R/M distributor for Bulletin 6808. He can also help you get MORE USE PER DOLLAR with R/M hose, conveyor and V-belts.

RM

MANHATTAN RUBBER DIVISION—PASSAIC, NEW JERSEY

RAYBESTOS-MANHATTAN, INC.

Other R/M products include: Industrial Rubber • Fan Belts • Radiator Hose • Packings • Brake Linings • Brake Blocks
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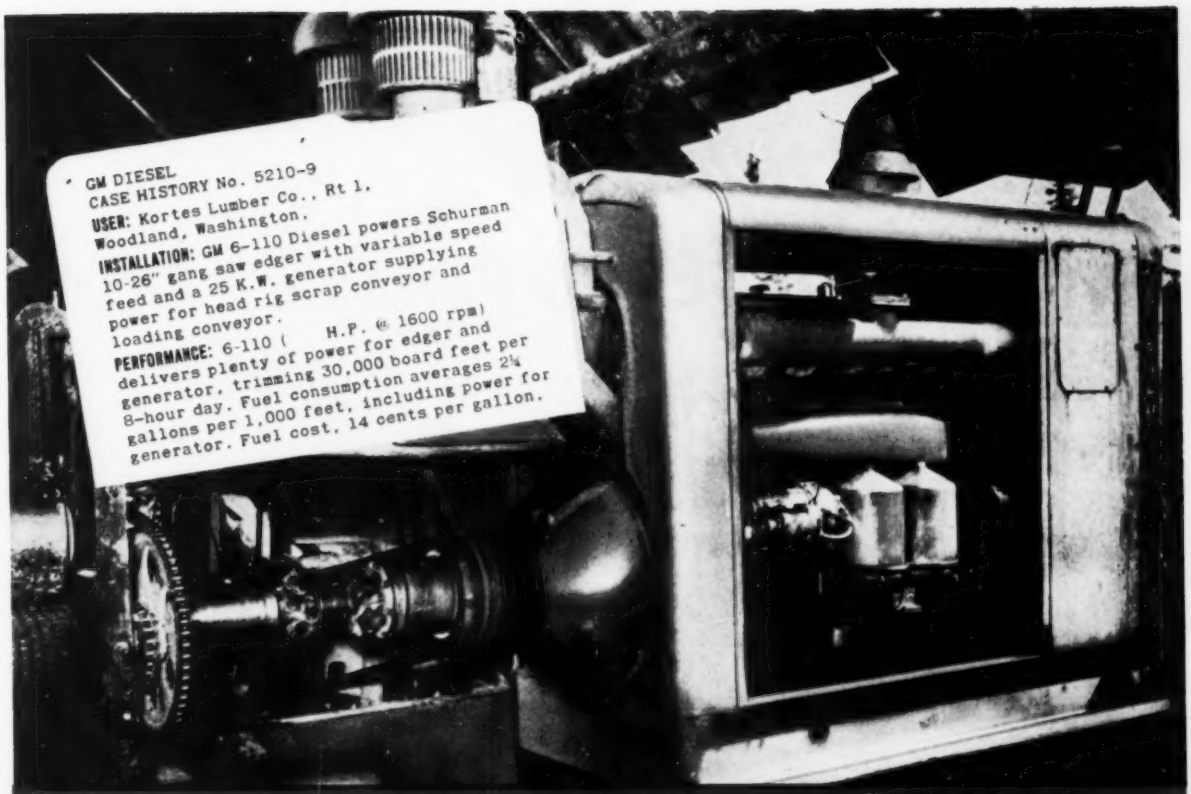
MR-910


GM DIESEL
CASE HISTORY No. 5210-9
USER: Kortes Lumber Co., Rt 1,
Woodland, Washington.
INSTALLATION: GM 6-110 Diesel powers Schurman
10-26" gang saw edger with variable speed
feed and a 25 K.W. generator supplying
power for head rig scrap conveyor and
loading conveyor.
PERFORMANCE: 6-110 (H.P. @ 1600 rpm)
delivers plenty of power for edger and
generator, trimming 30,000 board feet per
8-hour day. Fuel consumption averages 2¼
gallons per 1,000 feet, including power for
generator. Fuel cost, 14 cents per gallon.

This Diesel Trims 30,000 Feet Per Day

at a fuel cost of 31½ cents per thousand

"I tried different makes of gasoline and Diesel engines until I bought my first GM Diesel in 1943," says Mr. S. Kortes. Now he uses General Motors Diesels exclusively to drive his mill. A 6-71 powers the head rig, a 2-71 drives both log haul cable and drag saw and a 4-71 powers an HD-10 Allis-Chalmers tractor used to position logs for the log haul. Mr. Kortes bought the 6-110 the minute he heard about it—sight unseen. *"I attribute my sawmilling success to the GM Diesel's quick recovery under sudden loads and low fuel and maintenance costs."* A 2-cycle GM Diesel saws faster because it produces power at every piston downstroke—delivering maximum power the instant saw and log meet. It starts fast even in coldest weather—burns few gallons of safer, lower-cost fuel. And it costs less to maintain. See your GM Diesel distributor for all the facts.

DETROIT DIESEL ENGINE DIVISION
GENERAL MOTORS • DETROIT 28, MICHIGAN
SINGLE ENGINES...to 275 H.P. MULTIPLE UNITS...Up to 840 H.P.

It pays to Standardize on

GM
GENERAL MOTORS
DIESEL POWER

Write for booklet, "A 50,000,000 Horsepower Insurance Policy" that tells you why.

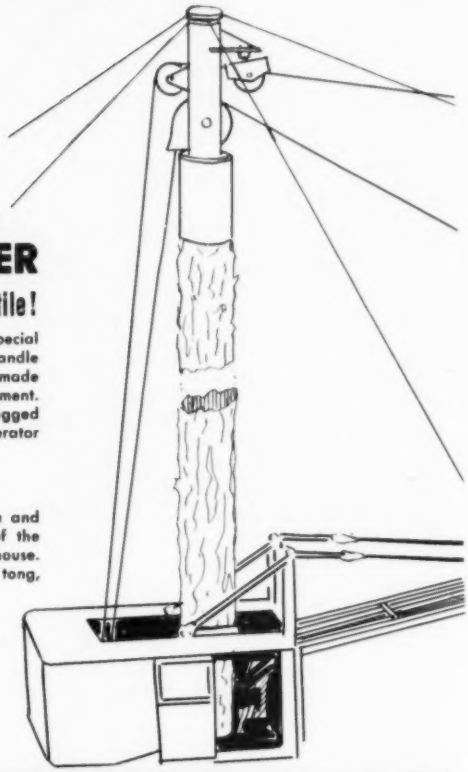
Just 60 minutes from

Portable LOADER to Portable YARDER

MODEL PC-100

YARDS THROUGH A FULL CIRCLE

Swivel cap containing bull-block, haul-back block and guys atop the spar allows yarding through a full circle, yet maintains a direct lead onto the bull-block.



...NEW...

COMBINATION YARDER and LOADER

PERFECTED BY PORTLAND CRANE & TRACTOR CO. is extremely versatile!

Handles logs up to 3500 ft. without being guyed on a straight line. For larger logs a special spar permits use of swivel guy wires allowing the boom to revolve 360 degrees. It will handle any log that a 1-inch main line will lift when the swivel spar is used. Greater lifts can be made with the spar with only about 10 minutes required to guy it through a special drum arrangement. This machine has a three-drum Berger Hoist with a donkey-type friction, providing more rugged drum mechanism than in conventional shovels. Hydraulic motors swing th house . . . operator has complete control.

A YARDER IN 60 MINUTES...

Normally it can be put into operation as a yarder within one hour by straightening boom and laying end of boom on the ground and placing approximately 60-ft. spar on top side of the boom and raising it with the boom into erect position directly above the center pin of the house. To convert between yarding and loading you simply break the butt rigging and hang a tong, then whip the main line into the open end of the boom.

LEGAL ON THE HIGHWAY...

Mobility is an important feature. Previously the largest similar machine that could legally travel on the highway was a 25-ton unit with the boom operating in a 12-ft. radius. Here is a 50-ton machine that is within legal limits. Where other machines require up to a full day to get ready for transportation, this one can be rolling in about 10 minutes.

Ask PORTLAND CRANE & TRACTOR CO. or your nearest Howard-Cooper office for details

Distributed in Oregon and Washington by:

HOWARD-COOPER CORPORATION

5821 N. E. Glisan Street • PORTLAND, OREGON

OR CONTACT ANY OF OUR BRANCH OFFICES

Manufactured by:

PORTLAND CRANE & TRACTOR CO.

312 Weatherly Bldg. • PORTLAND, OREGON • YEmont 2771

for every "boat job"...

3 to 25 Horsepower

Evinrude's the BUY!

● *Look sharp* at the savings when you power with an Evinrude instead of an inboard engine. Lower initial cost . . . and that cost is *all*. No expensive installation work—no accessories—no "extras," which can easily total more than the original engine cost.

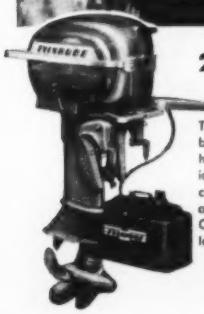
More important, look at the ADVANTAGES. Complete portability. Motors can instantly be transferred from boat to boat. No sacrifice of hull space. Utmost simplicity of operation and servicing. Safe and efficient running in shoalest waters. Greater maneuverability with gearshift which provides Neutral, Forward, Reverse.

Wherever power requirements are under 30 H.P., Evinrudes are the logical choice. See your Evinrude dealer. For free literature describing the complete Evinrude line, write to EVINRUDE MOTORS, Dept. C, 4166 N. 27th St., Milwaukee 16, Wisconsin.

In Canada, Manufactured by
Evinrude Motors, Peterborough, Ontario

7.5 H.P. Evinrude used in scaling work, Weyerhauser Timber Co., Coos Bay, Oregon

EVINRUDE
OUTBOARD MOTORS



25 H.P.

The motor for big boats, heavy loads, or high speed ferry service. Gearshift gives complete maneuverability. Roto-Matic Control. Separate, long range fuel tank.

$390

15 H.P.

The heavy-duty motor for medium sized hulls. Gearshift with Neutral, Forward, Reverse. Separate, large capacity fuel tank plugs into motor; stows anywhere in boat.

$325

7.5 H.P.

A capable utility motor—light, powerful, rugged. Weighs only 47 pounds. One-lever synchronized controls, Neutral, Forward Duo-Clutch, pivot reverse, Safti-Grip Drive.

$210

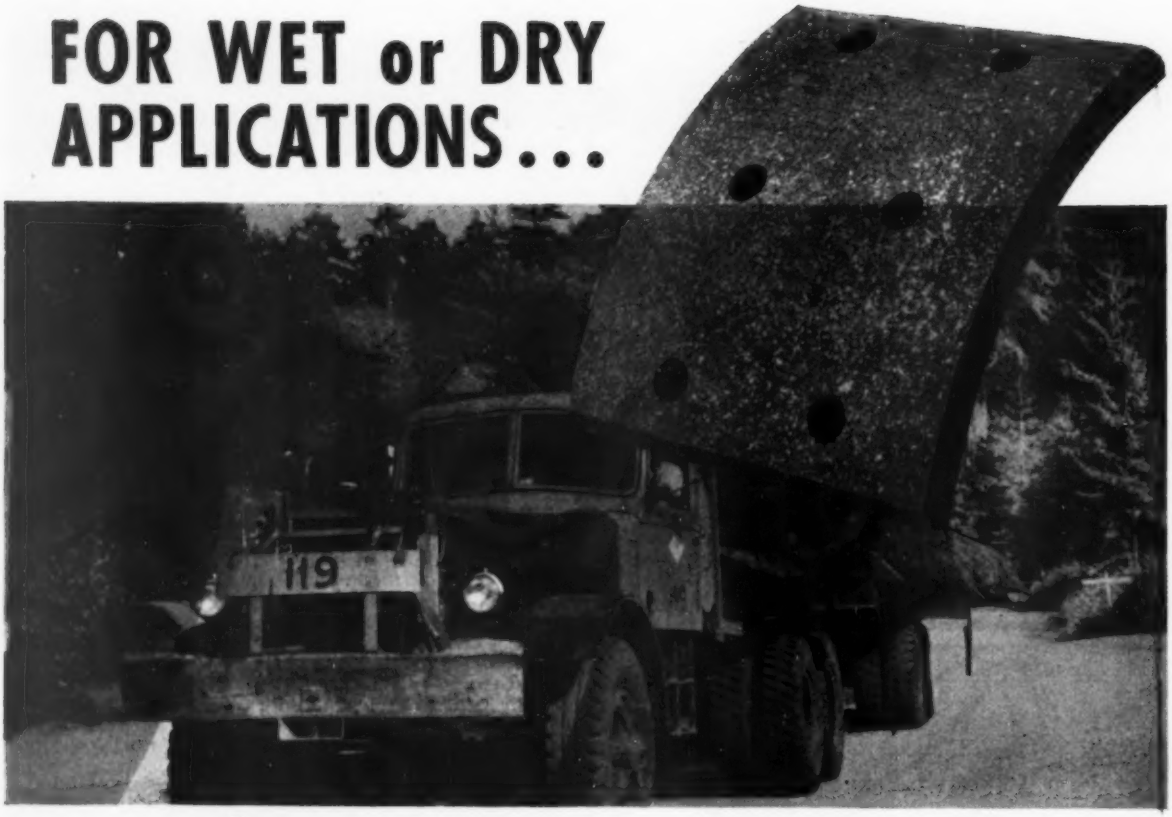
3 H.P.

An outstanding motor for small boat service. Weighs only 30 pounds. Equipped with Evinrude Fisherman Drive for efficient performance in weeds and shallowest waters.

$145

All prices F.O.B. Factory and subject to change without notice.

FOR WET or DRY APPLICATIONS...



American Brakeblok REG. U.S. PAT. OFF. HAS BEEN PROVED THE BEST!

American Brakeblok has always been recognized as a top performer by the logging industry. And today's blok is better than ever. It is equally dependable on wet or dry applications. It responds quickly and surely, wears slowly and evenly. It protects brake drums, in many cases doubles previous drum mileage.

All this has been proved. Today, American Brakeblok is used as the original equipment brake lining by more manufacturers of logging trailers than any other brand.

Use this American Brakeblok "waterblok" on your equipment. You'll get better brakes, more mileage, less drum wear. Call your N. A. P. A. Jobber today.

Reline with

American Brakeblok REG. U.S. PAT. OFF.

THE SAFETY BRAKE LINING

NAPA

Copyright 1953, American Brake Shoe Co.

AMERICAN Brake Shoe COMPANY

AMERICAN BRAKEBLOK DIVISION
DETROIT 9, MICHIGAN
Plants in:
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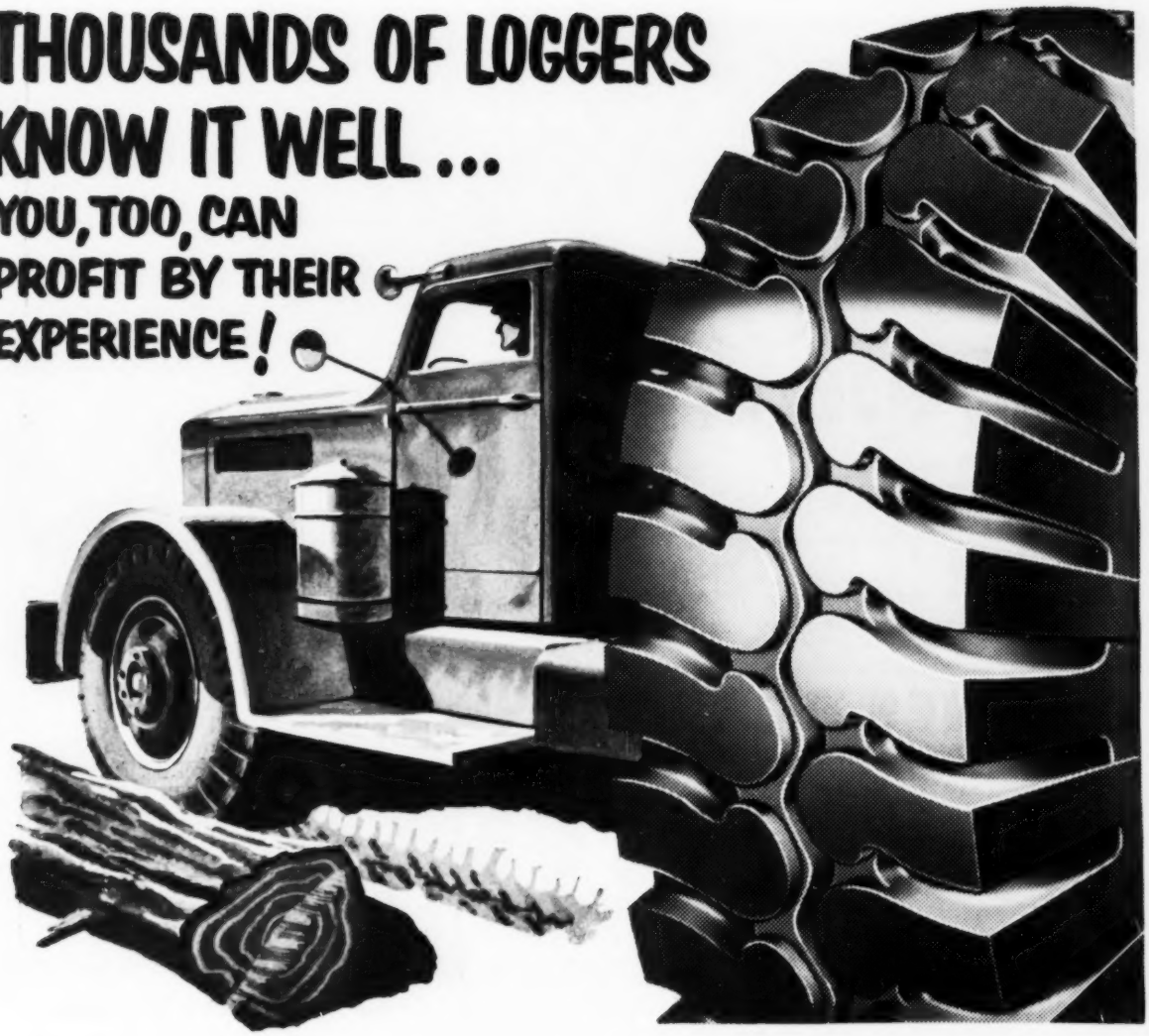
THOUSANDS OF LOGGERS KNOW IT WELL...

YOU, TOO, CAN PROFIT BY THEIR EXPERIENCE!



You, too, can have Highway Mileage and off-road Traction all in one Great Tire

The sensational Gillette Super Traction . . . well known by loggers everywhere for these extra performance features—packed with power and economy!

★ **Greater Power — new log-service traction —** 70% more tread at shoulder — deeper, huskier lugs — new "extra-bite" open center design.

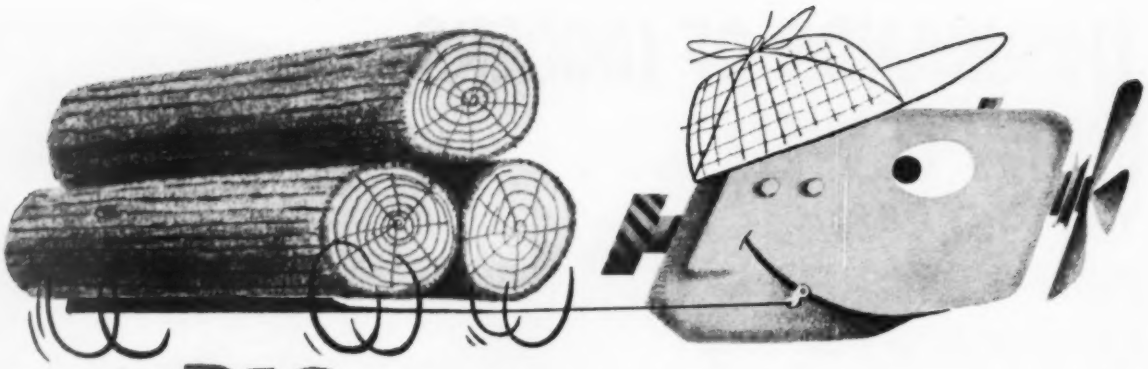
★ **Logging Economy — more original mileage** from new, deeper specialized "logging" treads — plus 74% more under-tread.

★ **Extra mileage — more and better recaps** with new advanced rayon construction.

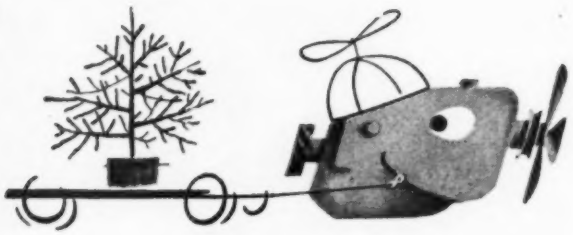
A Bear for Wear

GILLETTE TIRES

DIVISION OF UNITED STATES RUBBER COMPANY



IN BIG RIG...



OR SMALL

ENGINES AGREE ON TYDOL HD

Because it CLEANS—In gasoline or diesel engine, truck or tractor...Tydol HD Motor Oil *stops* sludging. Its brisk detergent action gets engines clean ... keeps engines clean, even in severest service.

as it PROTECTS—By neutralizing combustion acids, Tydol HD prevents corrosion and pitting of bearings, cylinder walls, rings and valves. Protects engines against excessive wear.

as it LUBRICATES—At any temperature anywhere, Tydol HD lubricates instantly, completely. Guards against stop-and-go wear in engines big and small. Try Tydol HD... and see!

3 GREAT OILS

FOR HEAVY-DUTY LOGGING

100% paraffin base high V.I. motor oils, scientifically compounded with selected additives for heavy duty.

TYDOL HD—High detergency... for any type engine in normal heavy duty.

TYDOL HD S-1—Higher detergency... for any type engine in stop-and-go service, or subjected to overloading.

TYDOL HD S-2—Highest detergency... for diesel engines in the most extreme operating conditions.

ASK your local Associated Representative which Tydol HD meets your needs.

EXTRA PROTECTION... ***...ALL THE WAY***

TIDE WATER ASSOCIATED OIL COMPANY (Western Division)

4 powerful reasons why 1953 CHEVROLET Advance-Design Trucks give you more of what you want

MORE POWER—GREATER ECONOMY! Expect a wonderful advance in power, performance and economy in Chevrolet heavy-duty trucks! The great 1953 Loadmaster engine—standard on 5000, 6000 Series, heavy-duty and forward control models, optional on 4000 Series heavy-duty trucks—has a new high compression ratio of 7.1 to 1, develops even more horsepower than before. And the Thriftmaster engine in light- and medium-duty models brings you traditional Chevrolet economy.

TRUCKS ENGINEERED FOR YOUR PAYLOADS! Chevrolet trucks are designed for the job they will do—engineered from tires to axle, springs, clutch and power plant to do that job with the greatest efficiency and lowest cost. You don't waste money on too heavy a truck or too light a truck. You buy the *right* truck for *your* job!

MORE STAMINA! More strength where strength counts most! In 1953, all Chevrolet trucks have stronger, brawnier, more rigid frames. They have heavier, sturdier construction that means a longer, lower-cost life for your truck. And they have new larger, safer, longer lasting brakes on many models, too!

GREAT TRUCK FEATURES! In addition to the many *NEW* things you'll find in these 1953 Chevrolet trucks, you'll also find many great features yet unmatched by other makes of trucks. Features such as Flexi-Mounted Cabs, Unit-Designed Bodies, Ball-Gear Steering and many others help make Chevrolet Advance-Design trucks your greatest buy. Chevrolet Division of General Motors, Detroit 2, Michigan.

CHEVROLET ADVANCE-DESIGN TRUCK FEATURES

TWO GREAT VALVE-IN-HEAD ENGINES—the Loadmaster or the Thriftmaster—to give you greater power per gallon, lower cost per load. **POWER-JET CARBURETOR**—for smooth, quick acceleration response. **DIAPHRAGM SPRING CLUTCH**—for easy-action engagement. **SYNCHRO-MESH TRANSMISSION**—for fast, smooth shifting. **HYPOID REAR AXLE**—for dependability and long life. **TORQUE-ACTION BRAKES**—on light-duty and medium-duty models and on front of heavy-duty models. **TWIN-ACTION REAR BRAKES**—on heavy-duty models. **DUAL-SHOE PARKING BRAKE**—for greater holding ability on heavy-duty models. **CAB SEAT**—with double deck springs for complete riding comfort. **VENTI-PANES**—for improved cab ventilation. **WIDE-BASE WHEELS**—for increased tire mileage. **BALL-GEAR STEERING**—for easier handling. **UNIT-DESIGNED BODIES**—for greater load protection. **ADVANCE-DESIGN STYLING**—for increased comfort and modern appearance.

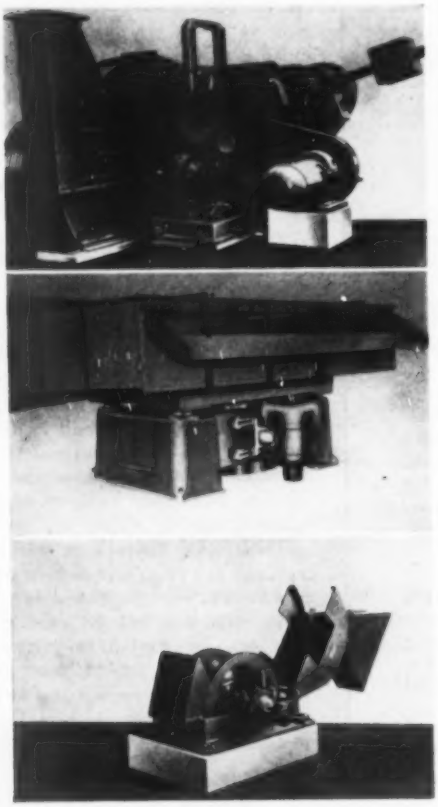
CHEVROLET
first in demand
in value
in sales

Convert Your Sawmill Waste to Clean, Uniform Pulp Chips

with Famous SODERHAMN

WOOD WASTE RECOVERY EQUIPMENT

Illustrated here are Soderhamn's Slab Chipper, Chip Screen, and Re-Chipper, which are making money for a number of the Nation's largest lumber industries by economically utilizing edgings and slabs for pulp manufacture. Initial investment can be quickly amortized.



Soderhamn
HF-60 SLAB CHIPPER

This new forced feed Chipper is especially designed to economically utilize edgings and slabs for pulp manufacture. Guaranteed to meet any pulping specification as to uniformity of chips.

Soderhamn
CHIP SCREEN CS-90C

New horizontal rotating type with double sawdust elimination and separate outlets for chips, sawdust and splinters. This is your guarantee of quality chips.

Soderhamn
RE-CHIPPER HS-10K

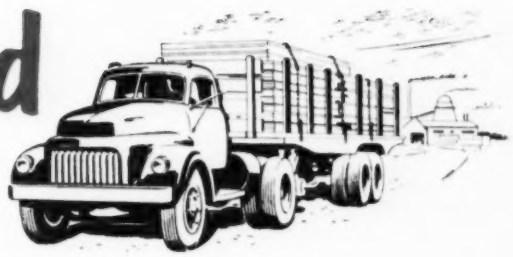
Converts rejects from conventional type chippers and screens into pulpwood chips, thus doubling their value, if burned as fuel.

For specifications and complete information about Soderhamn wood waste recovery equipment, including Anderson Pneumatic and Portable Barkers, Carpenter Barkers, Chippers, Chip Screens, Re-Chippers, and Swedish gang mill equipment, wire, phone or write—

Canadian West Coast representative: CANADIAN SUMNER IRON WORKS, VANCOUVER, B. C.

SODERHAMN MACHINE MANUFACTURING CO.
TALLADEGA • ALABAMA

Eaton 2-Speed Axle Trucks deliver EXTRA thousands of lower-cost



More than
a Million-and-a Half
in Trucks Today!

trouble-free miles

Eaton 2-Speeds provide power and speed for quicker full-load trips, at lower cost per mile. Drivers easily select the ratio best suited to road and load, reducing stress and wear, adding thousands of miles to vehicle life. Let your dealer explain how Eaton 2-Speeds make trucks worth more—in use, and when traded-in.

EATON AXLE DIVISION
MANUFACTURING COMPANY
CLEVELAND, OHIO

PRODUCTS: Sodium Cooled, Poppet, and Free Valves • Tappets • Hydraulic Valve Lifters • Valve Seat Inserts • Jet Engine Parts • Rotor Pumps • Motor Truck Axles • Permanent Mold Gray Iron Castings • Heater Defroster Units • Snap Rings Springtites • Spring Washers • Cold Drawn Steel • Stampings • Leaf and Coil Springs • Dynamatic Drives, Brakes, Dynamometers

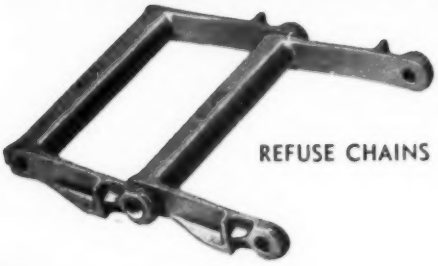
MOLINE THE BEST CHAIN . . . FOR EVERY OPERATION!

from the LOG HAUL *to the* GREEN CHAIN

MOLINE

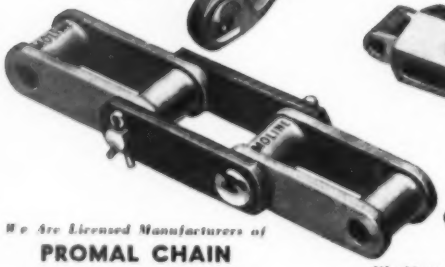
makes exactly
the right chain
suited to the job

H-TYPE
MILL CHAINS



REFUSE CHAINS

TRANSFER CHAINS



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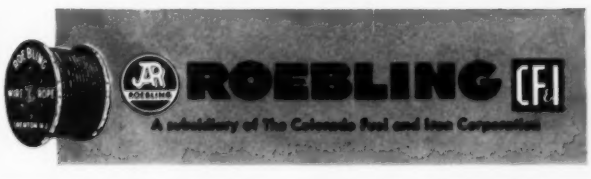
IT'S JUST THAT SIMPLE. There's only one reason in the world why 2 out of 3 loggers prefer Roebling arch lines and chokers...*they cost a lot less on the job than any others.*

For maximum wire rope efficiency and economy, call your nearest Roebling office for a Field Man. He'll recommend the best ropes for your operations.



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THE *Tip-off*

In trucking, as in basketball, a good tip can make the difference between winning and losing. The tip-off here is that you'll put the ball through the hoop every shot when you call on Kenworth engineering to help solve your transportation problems. Kenworth's team will help you score on your home floor. The "key" is that Kenworth gives individualized, expert attention to truckers' needs. That's why more and more successful operators are joining the fans who say . . .

. . . There's more
WORTH in KENWORTH

KENWORTH

TRUCKS ★ BUSES

FACTORY AND HOME OFFICE: SEATTLE, U. S. A., DISTRIBUTORS IN THE UNITED STATES AND MOST FOREIGN COUNTRIES

one answer... HANNA for all three...

labor-saving cylinder power

Standard Hanna Cylinders—
Matched to the Job!

A choice of hydraulic and pneumatic cylinders to match your power and mounting requirements . . . to improve control and operation of machines and equipment . . . to replace or reduce manual operations. Hanna Valves provide hand, foot, cam or pushbutton actuation; manual, semi-automatic, full automatic or remote control operation.

money-saving engineering

Nation-wide, on-the-spot
Sales and Engineering Service!

Hanna experts in cylinder power applications are always ready to help you select the best cylinder and valve combination for your special requirements, to see that you get the most value from your cylinder dollar.

time-saving delivery service

Planned Production Scheduling
Assures Prompt Delivery!

Hanna Sales Representatives located in principal cities throughout the U.S. and Canada can give you **less than three weeks' delivery** on Hanna Cylinders. They carry a stock of Hanna Valves for immediate delivery.

The Hanna name is your assurance of quality. It is backed by over 50 years of specialization on cylinders and control valves. It means economical cylinder power, dependable engineering help and prompt delivery. See your Classified Directory or your Hanna Catalog for the name of your local representative. He is ready to help you solve your power motion problems. Call him today!

Write for free copy of new Bulletin 255 showing Hanna Cylinder Power in Action!

Hanna Engineering Works

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BEARINGS & TRANSMISSION PRODUCTS, INC.
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NEW HORSEPOWER!
NEW BRAKING POWER!
NEW EARNING POWER!

Biggest truck values of the year! New, just-announced Dodge trucks with features like . . .

7 high-compression engines, with 100 to 171 horsepower, give you more ton-miles per hour, more deliveries per day! New styling inside and out, tough new floors in pick-up and panel bodies, new tighter-than-ever tailgates on pick-ups and expresses! A total of more than 50 brand-new features to boost truck earning power!

More, you get such famous Dodge extra values as lightweight aluminum-alloy pistons, rivetless Cyclebond brake linings on all hydraulic brakes, moistureproof ignition, shot-peened rear axle shafts! Get more truck for your money . . . see your neighborly Dodge dealer!

NEW!

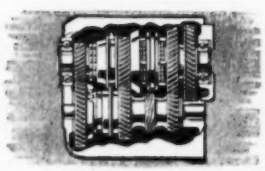
MORE POWERFUL ENGINES!

7 high-horsepower engines! 3 brand-new, with increased displacement, greater cooling capacity, twin carburetion available on larger trucks!

NEW!

BETTER BRAKING!

Super-safe brakes stop smoothly, easily, with less pedal pressure! New increased stopping ability on 1- thru 2½-ton trucks!



NEW!

NO GEAR-SHIFTING!

Truck-o-matic transmission with gyrol Fluid Drive available on ½- and ¾-ton models! Saves shifting, yet lets you rock out of snow, mud!

NEW!

OVER 50 FEATURES!

Reinforced cab construction, larger exhaust system, new 116" wheelbase ½-ton pick-up! Dodge-Tint glass, higher output heaters available!

There's one to fit your job . . . ½-ton through 4-ton. See your friendly Dodge dealer.

DODGE "Job-Rated" TRUCKS

Mon

The ox who wouldn't say "no"

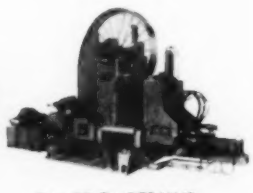
Forty-three years ago, western industrialists discovered that they, like Paul Bunyan, had a Blue Ox. Like Paul, they gave it a thousand impossible tasks and found there was nothing it couldn't do. It became known as Monarch Forge and Machine Works—(and still is)—and like the Blue Ox, the company grew and thrived on hard work and engineering feats performed for western industries.

Today, when sawmill operators need custom-designed machinery, they think immediately of Monarch—the company that always says, "Sure, it can be done!" Monarch machines are of advanced design because the men of Monarch keep informed by working in close cooperation with sawmill operators. Monarch—quite deservedly—is proud of its place along side the Blue Ox and Paul and the sawmill men in "logging the west."

STANDARD CARRIAGES

HEAVY DUTY CARRIAGES

SPECIAL CARRIAGES



6 to 10 Ft. RESAWS

arch

Sawmill Equipment

A note from you requesting our 1953 catalog
will send a courtesy copy on its way.

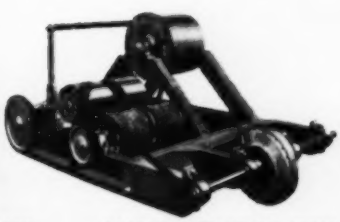
Monarch
Forge & Machine Works

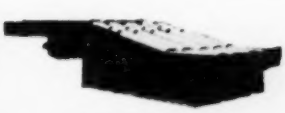
2130 N. W. YORK ST. PORTLAND 10, OREGON

LINE BAR RESAWS

6 to 10 Ft. BAND MILLS

ANDRUS SET WORKS


CARRIAGE FRICTION FEEDS


DECK EQUIPMENT

A Better Truck for Tougher Jobs

Suggestions for the man looking for a better truck:

1. Talk to someone who owns a White.

2. Talk to the man who drives one.

3. Talk to any good mechanic who knows the kind of guts White builds into the famous Super Power engines.

4. Ask your local White Representative for his scientific analysis of your particular hauling problem.

Do these things and you'll be money ahead—because you will know that the finest truck investment you can make today is White!

White

THE WHITE MOTOR COMPANY
CLEVELAND 1, OHIO
Factory Branches, Distributors and Dealers Everywhere

FOR MORE THAN 50 YEARS THE GREATEST NAME IN TRUCKS

CONVERT YOUR CIRCULAR MILL TO A BAND MILL WITH THE

54" WHELAND BAND MILL

RUNNING SLIVER TOOTH SAWS

no change in carriage necessary

- **Lower Operating Costs**
- **Up to 15% More Lumber Out of Your Logs**
- **More Accurate Lumber**
- **Pays for Itself in 2 Years or Less**

TYPICAL RESULTS:

WHELAND 54" BAND MILL BUILT FOR 10" SAWS.

Wheland also makes 6' and 8' Mills built for 12", 13" or 14" saws. The 6' and 8' mill offers optional equipment of motorized top saw guide and motorized wheel lift. Carriages and other equipment to match all Wheland band mills.

WALKER LUMBER CO.

MANUFACTURERS OF

HARDWOOD LUMBER

McMINNVILLE, TENN.

May 19, 1952

The Wheland Company
Chattanooga, Tenn.

Gentlemen:

Our new Wheland band mill is producing results better than you claimed. The lumber is unusually smooth, accurate and beautiful and the gain over circular production is greater than the 16% maximum that you predicted.

We had little difficulty in converting our circular filer and sawyer to band mill operation. Although we have used the mill only seven months, they are doing such a splendid job that other band mill operators marvel at the accuracy and smoothness of the lumber that we are producing.

Yours very truly,

WALKER LUMBER COMPANY, INC.

By W. S. Walker
V-Pres. & Sec'y.

. . . FOR MORE PRODUCTION, MORE PROFIT

SEND FOR BULLETIN
GIVING COMPLETE DETAILS

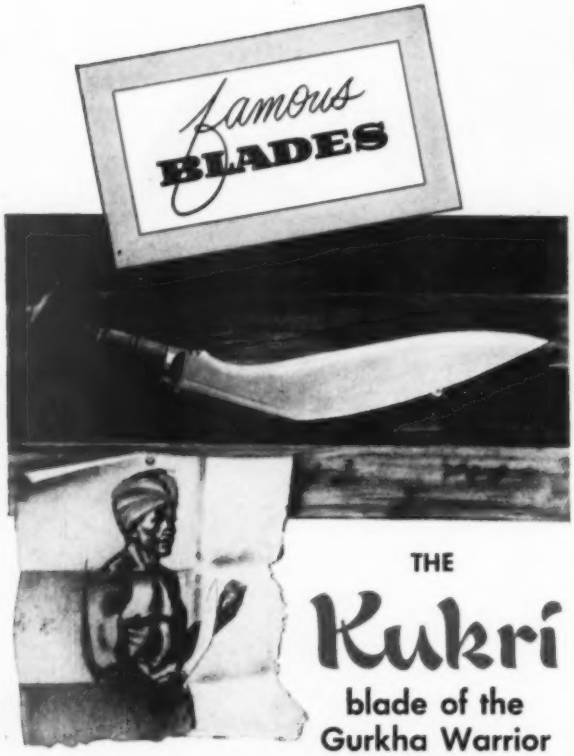
FIGURE IT OUT. We will gladly look at your present equipment, figure out the best installation for you, estimate production and costs. Write us and one of our experienced sawmill men will study your operation and give you the facts so that you can decide.

WHELAND

THE WHELAND COMPANY

CHATTANOOGA, TENNESSEE

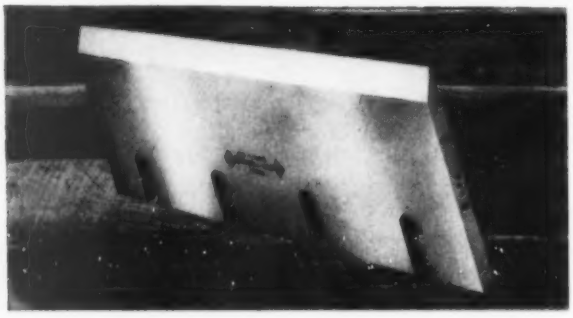
FOR OVER 80 YEARS, THE FOREMOST NAME IN SAWMILL EQUIPMENT



THE

Kukri

blade of the
Gurkha Warrior



Heppenstall CHIPPER KNIVES

famous for their service to modern industry

Heppenstall Chipper Knives are known throughout the pulp producing industry for their dependability. These are the blades that provide:

- *More cuts between grinds*
- *Less sawdust waste*
- *Lower overall blade cost*
- *Less oversize chips*

Make Heppenstall Chipper knives your standard specification.

Heppenstall

the most dependable name in Chipper Knives

PITTSBURGH 1, PENNSYLVANIA

Sales offices and distributors in principal cities

Signode offers better ways

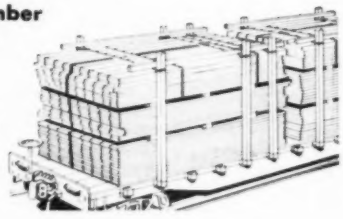
to protect shipments of lumber and millwork

Bundling your logs

- triples the capacity of your log pond
- lets you raft dense logs without sinking
- cuts cost of handling small timber

Bundling your lumber

- conforms to railroad loading requirements
- cuts loading and unloading time with mechanical handling
- keeps lumber straight and true



Power strapping your millwork or flooring

- speeds handling of small units
- provides tighter and more uniform bundles
- reduces pilferage and damage

Our methods save money

If you are plagued by complaints and costly, profit-eating adjustments with customers, our trained personnel can help you. Regardless of what you ship, or how you ship it, talk now with a Signode field man or write

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STEEL STRAPPING COMPANY

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Offices coast to coast. *In Canada:* Canadian Steel Strapping Co., Ltd.
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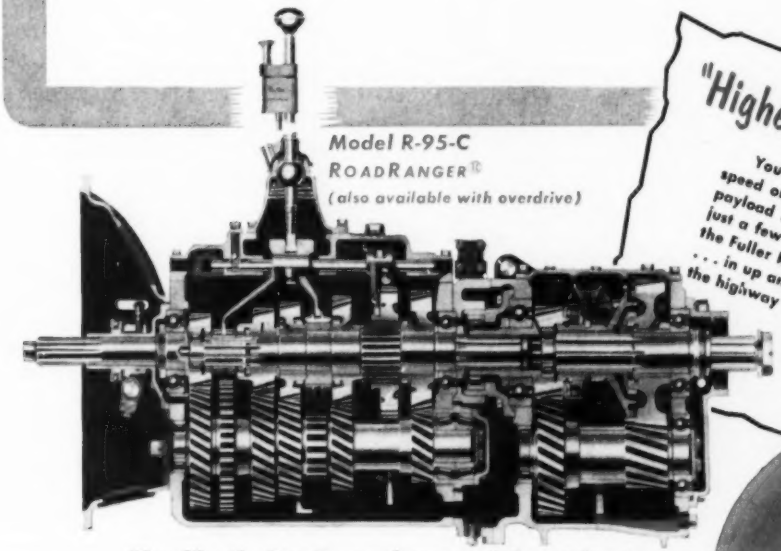
this seal SIGNODE *means security in shipping*

"Faster Work Cycles with the FULLER ROADRANGER®!

"To get the advantage of less shifting and higher speeds we use only Fuller ROADRANGER-equipped trucks on the longer, steeper hauls from our '500-Pit'," says Henry E. Fitch, General Superintendent of Blackfoot Coal Company, Oakland City, Indiana.

"Standard Fuller 10-speed transmissions do an excellent job on the lesser grades of our '550-Pit' . . . but we use the ROADRANGER units to keep up work cycles with 45-ton-plus loads on the longer haul, with its up to 5% grades."



Model R-95-C
ROADRANGER®
(also available with overdrive)

"Higher Average Speed on Grades"

You hear it everywhere . . . "higher average speed on grades . . . less driver fatigue . . . more payload . . . use lighter engines . . .". And that's just a few of the many things they're saying about the Fuller ROADRANGER. North, east, south, west . . . in up and down hauling, in dense traffic . . . on the highway and off . . . fleet operators are turning to the new efficiency of this 10-speeds-with-one-lever transmission.

They like the ROADRANGER because of these advantages:

1 No gear splitting—10 selective gear ratios, evenly and progressively spaced. **2** Easier, quicker shifts—28% steps—one shift lever controls all 10 forward speeds. **3** Higher average road speed—engine operates in peak hp range with greater fuel economy. **4** Less driver fatigue—1/3 less shifting. **5** Range shifts pre-selected—automatic and synchronized. **6** More compact than other 10-speeds. **7** More cargo on payload axle.

Fuller TRANSMISSIONS®

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.

B.F.Goodrich

Logger tires give bonus miles hauling 65-ton loads

THE Hammond Lumber Company of Cranell, California, is one of the country's largest producers of redwood lumber. The company's truck shown here has just hauled 90 tons of timber over roads covered with rock, oil and gravel to the rail station for shipment to the mill. Average loads are 65 tons.

It takes a rugged tire to stand the pounding of abrasive roads, the weight of giant loads. Such a tire is the B.F.Goodrich Rock Logger, built for logging service on rocky roadways. Its specially-compounded tread resists snags and cuts. Husky cleats give full traction in forward or reverse. And because the tread is non-directional, these BFG tires can be mounted in any wheel position. You need fewer spares.

Like all other B.F.Goodrich off-the-road tires, the Rock Logger tire is built with the patented nylon shock shield. Layers of strong, elastic nylon cords under the tread stretch together to protect the tire body from shocks and bruises that cause costly delays. The nylon shock shield gives you this 4-way saving: more original miles, more recappable tires and more miles per recap, increased bruise resistance and less danger of tread separation. All these advantages, yet BFG Rock Logger tires with nylon shock shield cost you nothing extra.

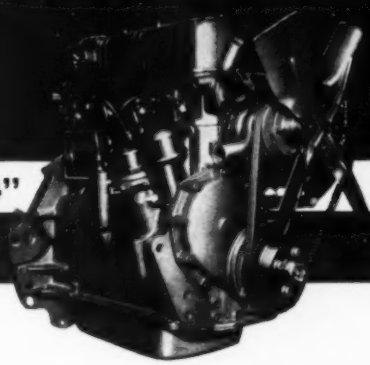
The Rock Logger is one of a complete line of B.F.Goodrich tires designed to fill every off-the-road requirement. Let your BFG retailer show you how these tires cut costs and give you bonus miles. His address is listed under Tires in the Yellow Pages of your phone book. *The B.F.Goodrich Company, Akron, Ohio.*

When ordering new equipment always specify B.F.Goodrich tires.

RESEARCH KEEPS
B.F.Goodrich
FIRST IN RUBBER

FORD'S *Heavy Duty* INDUSTRIAL ENGINES

meet America's most popular power needs!



FORD "134" 4-CYL., O.H.V.

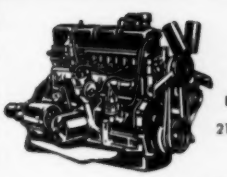
Ford's Overhead Valve Industrial Engines have been thoroughly tested and highly accepted for industrial applications in the field, and now a 4-cylinder power plant of the same type is being offered. This Ford "134" cu. inch engine incorporates notable advancements for still greater performance and operating economy. Bore: 3.4375 in. Stroke: 3.6 in. Rating (dyn.): 45 b.h.p. @ 2400 rpm.

Manufacturers of powered equipment throughout the U.S.A. are constantly in search of economical power to speed productive activities and increase profits.

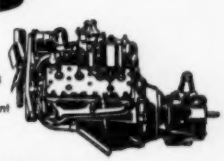
Because of its efficient mass production methods and nationwide service facilities, the Ford Motor Company is a popular source of economical, low-cost Industrial Power. *Here* on this page are the engines which Ford has designed and built to its famous Hi-Precision standards *especially* for the needs of Industry.

You'll find these Heavy Duty Engines at work today powering equipment in our vast oil fields, on our farms and in factories, around logging camps, sawmills, road building and huge construction projects.

If you're interested in any of the engine series shown, one of Ford's Staff of Sales Engineers will be glad to discuss your power problem and perhaps help you solve it advantageously.



FORD "215" 6 cyl.
Industrial Engine
215 cu. in. displacement



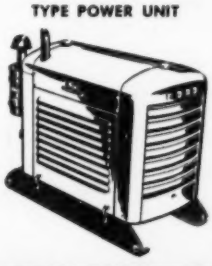
FORD "239" V-8
Industrial Engine
239 cu. in. displacement

FORD "254" 6 cyl.
Industrial Engine
254 cu. in. displacement

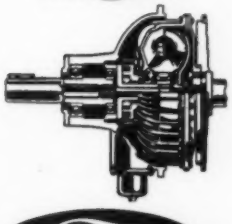
FORD "279" V-8
Industrial Engine
279 cu. in. displacement

FORD "317" V-8
Industrial Engine
317 cu. in. displacement

TYPICAL FORD CLOSED TYPE POWER UNIT



FORD MULTA-TORQUE CONVERTER



Ford
INDUSTRIAL ENGINES AND POWER UNITS

YOUR JOB IS WELL POWERED WHEN IT'S FORD POWERED

CLIP AND MAIL THIS HANDY COUPON TODAY!

INDUSTRIAL ENGINE DEPARTMENT
FORD MOTOR COMPANY, 15050 Woodward Ave., Highland Park 3, Michigan

WE ARE INTERESTED IN INDUSTRIAL POWER FOR:

_____
(state your application)

Please send us latest literature on Ford Industrial Engines checked below:

☐ "134" 4-Cyl. ☐ "215" 6-Cyl. ☐ "239" V-8 ☐ "254" 6-Cyl.
☐ "279" V-8 ☐ "317" V-8 ☐ "MULTA-TORQUE" Converter

FIRM NAME _____ YOUR NAME _____
(Please Print)

STREET ADDRESS _____

CITY _____ ZONE _____ STATE _____

Look into a
MIXED CAR
Avail yourself of the numerous unexcelled (F) brand forest products in convenient mixed carload shipments.
DOUGLAS FIR
PACIFIC COAST HEMLOCK
WESTERN RED CEDAR
IDAHO WHITE PINE
● CERTIGRADE Western Red Cedar Shingles
● "Weatherply" Douglas Fir Plywood
● "GRID-PLY" Flush Doors
● Douglas Fir Panel Doors
● Construction Sizes and Grades
● Pattern Clears
● Mouldings
● Flooring
● Siding
● Finish
(F) BRAND PRODUCTS ARE MANUFACTURED AND SHIPPED by
F TRADE MARK
CANADIAN WESTERN LUMBER COMPANY LIMITED
FRASER MILLS, BRITISH COLUMBIA

No ONE chain serves every purpose

LINK-BELT offers the right chain

. . . engineered for your requirements

Don't settle for a "cure-all" chain to handle every job. Different types of chain have different characteristics. That's why Link-Belt makes a complete line of chains. Our engineers can recommend the correct type of chain to fit your particular needs . . . the one that does your job best.

Equally important is your assurance that *any* chain with the Link-Belt name will give you longer chain life. Accurate control of raw materials and processes . . . plus manufacturing refinements add up to the highest standards.

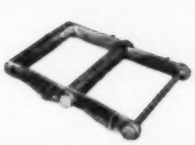
LINK-BELT COMPANY: Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Houston 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8, Springs (South Africa), Sydney (Australia). Offices, factory branch stores and distributors in principal cities. 12,751-A

LINK-BELT

CHAINS AND SPROCKETS

Four strands of Link-Belt class H pintle chain convey lumber from sawmill to stacker building prior to drying in kilns.

Typical chains from the complete LINK-BELT line



Class H drag chain—for drag conveyors, handling sawdust or other refuse in runways or troughs.

Class H Pintle chain—excellent for conveyors that slide, because of broad wearing surfaces.

Class SS bushed roller chain with offset sidebars—for heavy drive service at moderate speeds.

Roof-top pintle chain—for transfer conveyors, each strand presenting a sturdy, moving ridge.

Oilgear Fluid Power Two-Way Generator (Pump) with electric remote control Type "DX"

Oilgear Fluid Power Two-Way Motor Type "H"

Oilgear Fluid Power Two-Way Variable Speed Transmission with simple servo-motor lever control Type "DHC"

where can **you** use these Oilgear Fluid Power Units?

There have never been power units so well fitted to the special and unique combination of characteristics required by the Forest Products Industry as Oilgear Fluid Power Generators, Motors and Transmissions. They provide ruggedness, dependability, long life, low maintenance. They offer easy adaptability and installation. They give a true *Any*-Speed range without "dead" or ineffective spots throughout the entire range. Easy to control, to change speed, to reverse. Extremely low in power consumption and consuming power only in proportion to the work done. Simple, accessible, requiring no costly auxiliary equipment.

Such are some of the reasons why this great power system is thrusting its roots deeper and deeper into the industry as its true characteristics become more widely known and proved beyond all question.

If its advantages sound too good to be true, you need only find out who some of its users are and talk to them. Then call in one of our engineering representatives. Experience will show you Oilgear superiorities are broad and exclusive. THE OILGEAR COMPANY, 1562 W. Pierce St., Milwaukee 4, Wisconsin.

Oilgear Fluid Power Units are already being used to great advantage in many of the following applications:

SAWMILLS

- Carriage Drives
- Feed Roll Drives
- Set Works and Holding Dogs
- Turners
- Niggers
- Barkers
- Edgers
- Haulers

HARDBOARD-VENEER

- Processing Presses
- Vacuum Transfer Mechanisms
- Veneer Clipper Drives
- Veneer Conveyor Drives
- Veneer Lathes
- Surfacers

PULP and PAPER

- Paper Machine Drives
- Calender Drives
- Winder Drives
- Unwinder Drives
- Pulp Baling Presses
- Hold-down Systems

Talk to our Engineering Representatives

MR. R. E. DAVIS
P.O. Box 356
Beaverton, Oregon
Phone: Beaverton 4-4513

MR. E. H. PARDUHN
727 West 7th Street
Los Angeles 17, Calif.
Phone: Vandike 8544

OR WRITE MAIN OFFICE

OILGEAR

OILGEAR

There's only ONE TAPER-LOCK

TAPER-LOCK sheaves run true! The patented Taper-Lock bushing grips the shaft for the full length of the bushing—holds with the firmness of a shrunk-on fit!

Every belt pulls its full share of the load. Grooves, machined on precision equipment, have identical pitch diameters, assuring equal belt tension.

Easy on—Easy off. Slip it on the shaft, line it up and tighten while sighting. In ease and speed of mounting and demounting you'll appreciate there is only ONE Taper-Lock.

No flange, no collar, no protruding parts. Flush hub means safety.

Taper-Lock sheaves are available from distributors' stocks in complete range of sizes in A, B, C and D grooves.

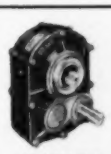
DODGE MANUFACTURING CORPORATION
900 UNION STREET, MISHAWAKA, INDIANA

1878 DODGE 1953 75th ANNIVERSARY

DODGE
of Mishawaka, Ind.

CALL THE TRANSMISSIONEER, your local Dodge Distributor. Factory-trained by Dodge, he can give you valuable assistance on new, cost-saving methods. Look for his name under "Power Transmission Machinery" in your classified telephone book.

DODGE-TIMKEN PILLOW BLOCKS



TORQUE-ARM SPEED REDUCERS

ROLLING GRIP AND DIAMOND D FRICTION CLUTCHES

Mack comes in costs go down

It happens all the time. A truck user finds that heavy loads, rigorous weather, or tough terrain are proving too much for the trucks he owns. Frequent breakdowns . . . interrupted output . . . excessive repairs—all conspire to boost his costs and cut his profit margin. Then—if he's smart—he switches to Mack six-wheelers.

And that's where he gets a real eye-opener. Because even under the most adverse hauling conditions—hub-deep mud, slippery sand or pitted rock-strewn ground—his Mack six-wheelers keep the big loads moving on dependable, time-saving, cost-cutting schedule.

The reason why? It's found in Mack's Balanced Bogie with exclusive Power Divider that assures positive traction no matter how tough the going. Acting normally as a true differential the Mack Power Divider delivers torque between the two bogie axles in proportion to wheel traction, thus eliminating useless wheel slippage and spinning.

Mack's Balanced Bogie and Power Divider combine with numerous other outstanding Mack features to give you the power, strength, traction and easy maintenance you need to handle the biggest loads—with greater profit to you. Your nearest Mack branch or distributor will gladly give you all the facts.

Mack TRUCKS

. . . outlast them all

Mack Trucks — Los Angeles • Denver • San Francisco • Seattle • Portland • Salt Lake City • Factory branches and distributors in all principal cities for service and parts.

In Nicaragua, too, Mack six-wheel trucks get the call on tough lugging operations. Shown here, one of eight Mack six-wheelers serving Nicaraguan Long Leaf Pine Lumber Co. on a 75-mile haul to Puerto Cabezas.

Watch 'em go for the

NEW

TITAN 100

CHAIN SAW

YEARS AHEAD IN ENGINEERING

- Twin cylinder, alternate firing engine is more compact; eliminates kicking; starts easier; gives maximum lugging power.
- Counter rotating crankshafts, spur-geared together, eliminate torque and vibration.
- Carburetor construction allows increased cutting angle.
- Off-set cylinders keep bar and chain clear of the ground.
- Safety clamp plate has built-in bar adjuster for continuous chain tension.
- Pressurized oiling system with finger-tip control.
- Can be adapted for one-man use.
- Turbo-type fan provides adequate cooling for maximum operating temperatures.
- Quick-detach transmission for instant release of power unit.
- Baffle-type mufflers are protected from falling sawdust and are directed away from operator and sawing operation.
- Safety vent gas cap prevents spilling.
- Air cleaner assures abrasive-free air.
- More than enough power to handle a 9-foot bar.
- Motor and transmission combined weight is less than 50 pounds.
- 360° swivel permits cutting from any angle.
- Simplicity of design assures less maintenance.
- Completely automatic clutch is built for extra heavy duty service.

TITAN CHAIN SAWS, INC.
2704-02 Fourth Ave. South, Seattle 4, Wash.

Please send me literature on the new Titan 100 and other TITAN CHAIN SAWS.

Name_____

Address_____

City_____ State_____

TITAN
CHAIN SAWS, Inc.
SEATTLE 4, WASHINGTON

FOR FINEST

Architectural Quality Redwood

with HIGHEST GLUE-HOLDING ABILITY

SPECIFY PALCO CERTIFIED DRY REDWOOD

No other wood surpasses Redwood in gluing properties, and few begin to equal it. Along with this natural advantage, PALCO *Architectural Quality* Redwood offers highest uniformity of texture, grain and seasoning—with greatest dimensional stability and minimum shrinkage. For highest ability to take and hold different types of glue under different methods of application without special treatment, insist on PALCO *Certified Dry* Redwood—It's the best by every comparison, and yet costs no more.

For a comparative analysis of Redwood's outstanding qualities, write for Redwood Data Book "JG," today.

PALCO Redwood is tops in ALL these qualities

- ✔ High Dimensional Stability
- ✔ Low Swelling and Shrinkage
- ✔ Finest Paint Retention
- ✔ Greatest Durability
- ✔ Good Workability
- ✔ Glue-holding Ability

Specify PALCO REDWOOD

THE PACIFIC LUMBER COMPANY

The best in Redwood—Since 1869

Mills at Scotia, California

100 Bush St., San Francisco 4 • 35 East Wacker Drive, Chicago 1 • 5225 Wilshire Blvd., Los Angeles 36

MEMBER OF CALIFORNIA REDWOOD ASSOCIATION

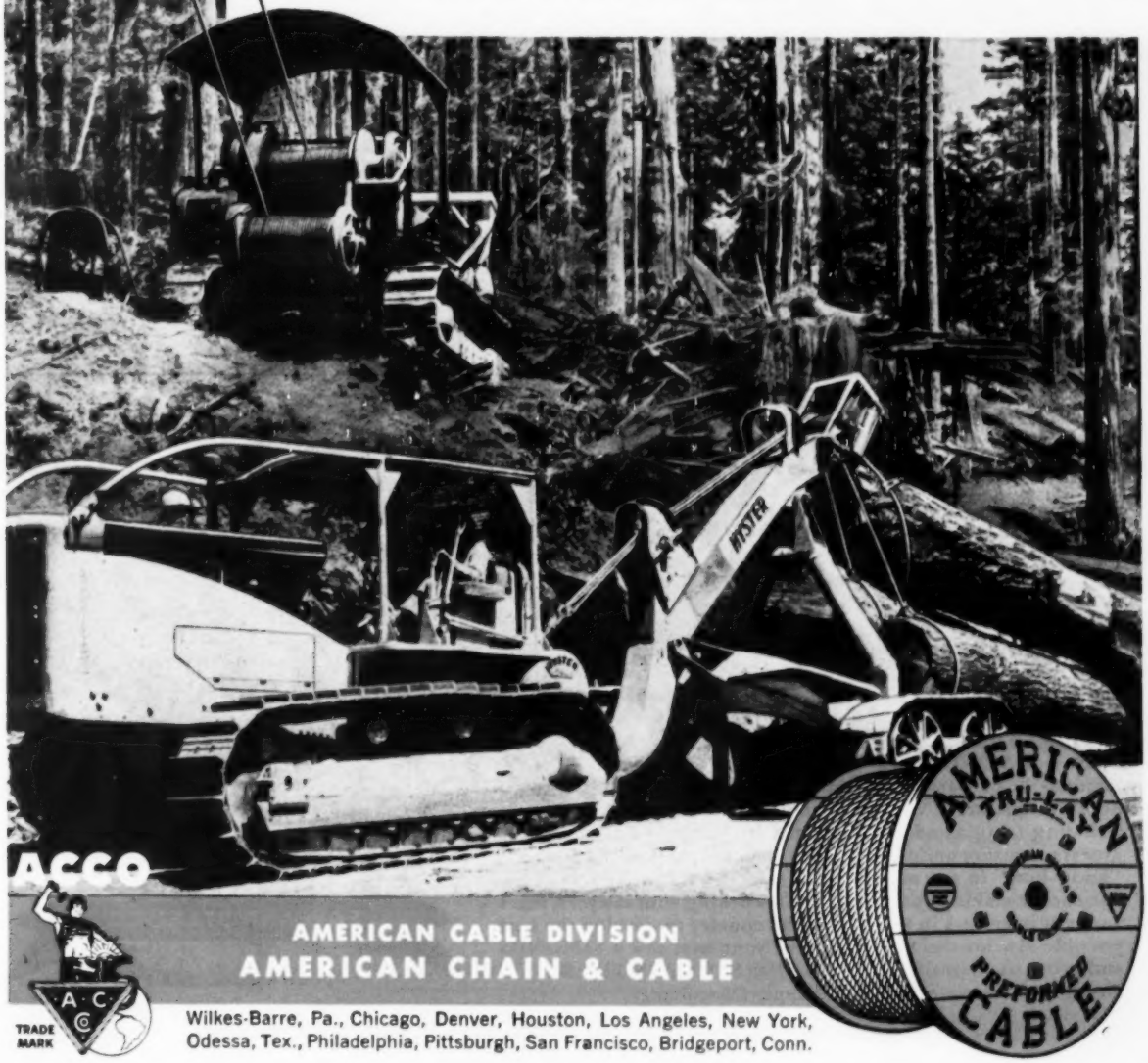
an ACCO product

TRU-LAY Preformed WIRE ROPE

● For each use there is *one best* wire rope . . . one that will stand repeated loading, abrasion, crushing, or continuous bending, and be the best rope to buy.

To achieve this, there is a TRU-LAY Preformed Wire Rope made in a special construction for your equipment. This construction has the exactly right combination of strength, bending life, and resistance to wear and crushing that you need.

The one best wire rope . . . TRU-LAY Preformed . . . will last you longer and cost less to use. Specify and get TRU-LAY Preformed improved plow steel—for all your equipment.



ACCO

AMERICAN CABLE DIVISION
AMERICAN CHAIN & CABLE

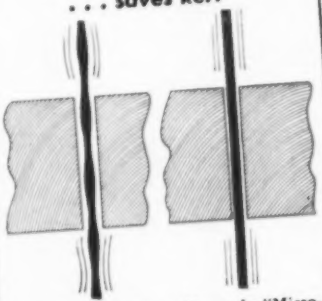
TRADE MARK

Wilkes-Barre, Pa., Chicago, Denver, Houston, Los Angeles, New York, Odessa, Tex., Philadelphia, Pittsburgh, San Francisco, Bridgeport, Conn.

"Check this PROFIT STATEMENT"

UNIFORM THICKNESS OF SIMONDS WIDE BAND SAWS

eliminates saw flutter . . . saves kerf

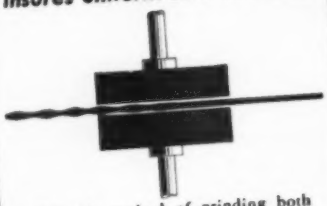


Saw that is not uniform in thickness will flutter as it runs over the guides and cut a wider, rougher kerf.

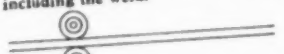
Simonds "Micro-Check" Ground Saw rides smoothly over the guides, eliminates flutter, saves kerf, cuts smoother lumber.

SIMONDS "Micro-Check" Grinding

insures uniform saw thickness



Simonds method of grinding both sides of the saw at the same time insures uniform thickness throughout, including the weld.

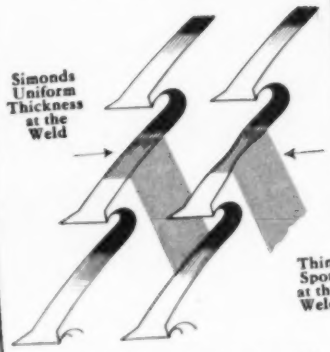


The uniform thickness of a Simonds Saw makes tensioning easier, saves time and effort.

Saws of uneven thickness take more time and effort to tension, run poorly.

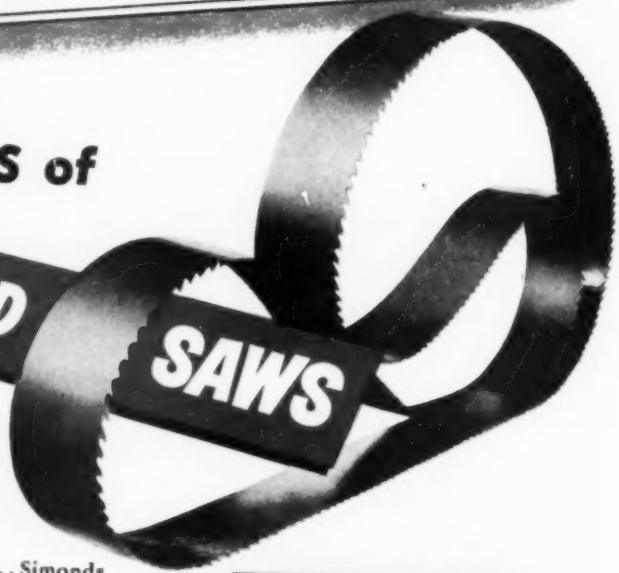
SIMONDS "Micro-Check" Grinding

prevents a thin tooth at the weld



Thin spots or soft, short teeth, which cause a rough or scratched finish, are eliminated by Simonds Method of grinding.

...See how these FEATURES of SIMONDS WIDE BAND SAWS mean more money for YOU!



Only a SIMONDS SAW gives you the benefit of Simonds Steel (famous for its toughness and edge-holding qualities) . . . Simonds "Micro-Check" Grinding (originated and perfected by Simonds Engineers to insure uniform saw thickness and tension) . . . Simonds "know-how" in saw manufacture (acquired through years of experience in making band saws and in working with sawyers, filers and mill operators in all parts of the country to develop the best possible saw for their needs). Make your next saw a SIMONDS and prove to yourself that "SIMONDS SAWS ARE THE BEST"! Order through your Industrial Supply Distributor.

SIMONDS SAW AND STEEL CO.

FITCHBURG, MASS.

Factory Branches in Boston, Chicago, San Francisco and Portland, Oregon. Canadian Factory in Montreal, Que.
Simonds Divisions: Simonds Steel Mill, Lockport, N. Y., Simonds Abrasive Co., Phila., Pa. and Arvida, Que., Canada

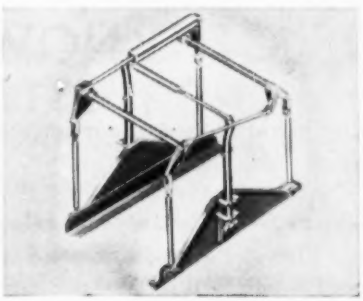
Lumber handling problems?

ROSS SERIES 80 STRADDLE CARRIER

Streamlined right down to fighting trim, Series 80 is as efficient as it looks. That's why it moves lumber *fast* . . . and *keeps* it moving day in and day out at surprisingly low cost. Let this 20,000-pound capacity "middleweight king" of straddle carriers help lick your lumber handling problems.

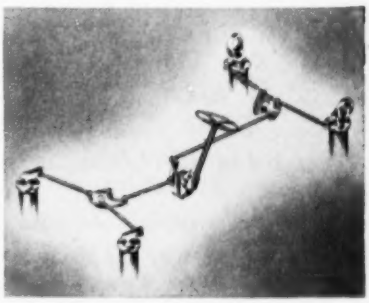
UNEXCELLED ROAD-LOAD VISION

Driver can easily see a 5-foot man 7" from front, 12" from right corner, 28" from right side of carrier . . . and has clear view of load hooks when straddling loads.



HYDRAULIC HOIST AND HOOK SWING

Powerful, fast and smooth. Loads picked up and set down with precision . . . no delays, no waste motion . . . more pay-loads per hour. Hoist automatically protected against overloads by built-in safety valve.



FOUR-WHEEL RADI-ARC STEERING

This exclusive feature gives Series 80 a shorter turning radius than any other carrier in its class. Narrow runways, ramps, congested areas readily negotiated without time-wasting backing and turning.

Get full details on the many advanced-engineering features of Ross Series 80 Straddle Carrier . . . you'll be 'way ahead.

Rely On ROSS

THE ROSS CARRIER COMPANY

Direct Factory Branches and Distributors throughout the World

240 MILLER STREET, BENTON HARBOR, MICHIGAN, U. S. A.

50 YEARS OF "KNOW HOW"

Atop the massive main entrance pictured here, is our trade character the H-E man, symbol of the Holmes Eureka way of doing business.

This scene in Eureka is on Highway 101. The daily movement of outbound trucks through our gateway is a lively activity. They are loaded with the finest lumber that modern methods can produce.

Our company, founded 50 years ago, by J. H. Holmes, has pioneered and moved forward with every advance in scientific lumbering, from logging operations to sawing, grading, drying and shipping. The source of H-E quality Redwood is a vast forest of commercial timber. Harvesting is controlled and handled like a crop, on a sound conservation plan.

Welcome to Eureka, where we swing the gates wide open and gladly guide you through the mill.

HOLMES EUREKA LUMBER COMPANY

MILLS AT EUREKA. SALES OFFICES ARCHITECTS BUILDING, LOS ANGELES. 405 MONTGOMERY STREET, SAN FRANCISCO

See it Saw

Don't buy any chain saw until you see a DISSTON demonstration

"The Champ of the Woods"

SEE the smooth-running

DISSTON DA-211

with 9 h. p. Mercury Engine

SEE this rugged, reliable worksaver cut and you'll agree there's no job too tough for it! So expertly designed and built it runs at top speed without vibration or chatter.

SEE why it's the undisputed leader for low cost high production cutting of big timber. Meets *every* logging need.

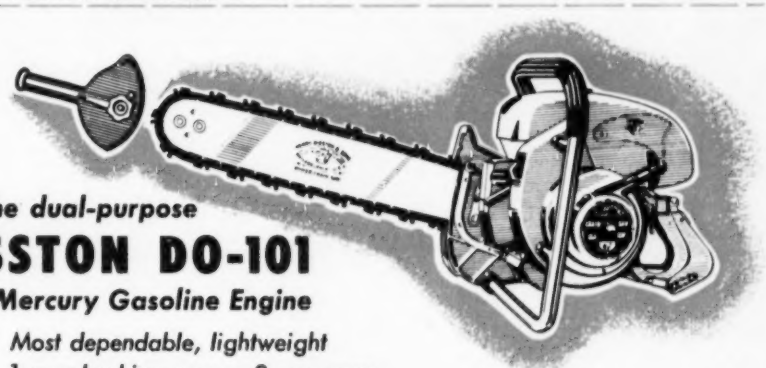
SEE the cutting attachments available which extend the saw's usefulness, including narrow profile guide rails for pulpwood up to seven feet long and 25" Bow Saw attachment.

New

LOW PRICES!

ON ALL DO-101 MODELS

starting at $299.75



SEE the dual-purpose

DISSTON DO-101

with Mercury Gasoline Engine

Most dependable, lightweight 1-man bucking saw or 2-man saw

SEE this amazing saw in action... you'll find it hard to believe! A smooth-running powerhouse that cuts tough logs in seconds. Compact, precision-built Mercury Gasoline Engine keeps it running all day every day.

SEE the many cutting attachments, including: Spee-D-Tach tailstock for quick conversion to 2-man use. A choice of seven rail lengths from 18" to 40".

FREE

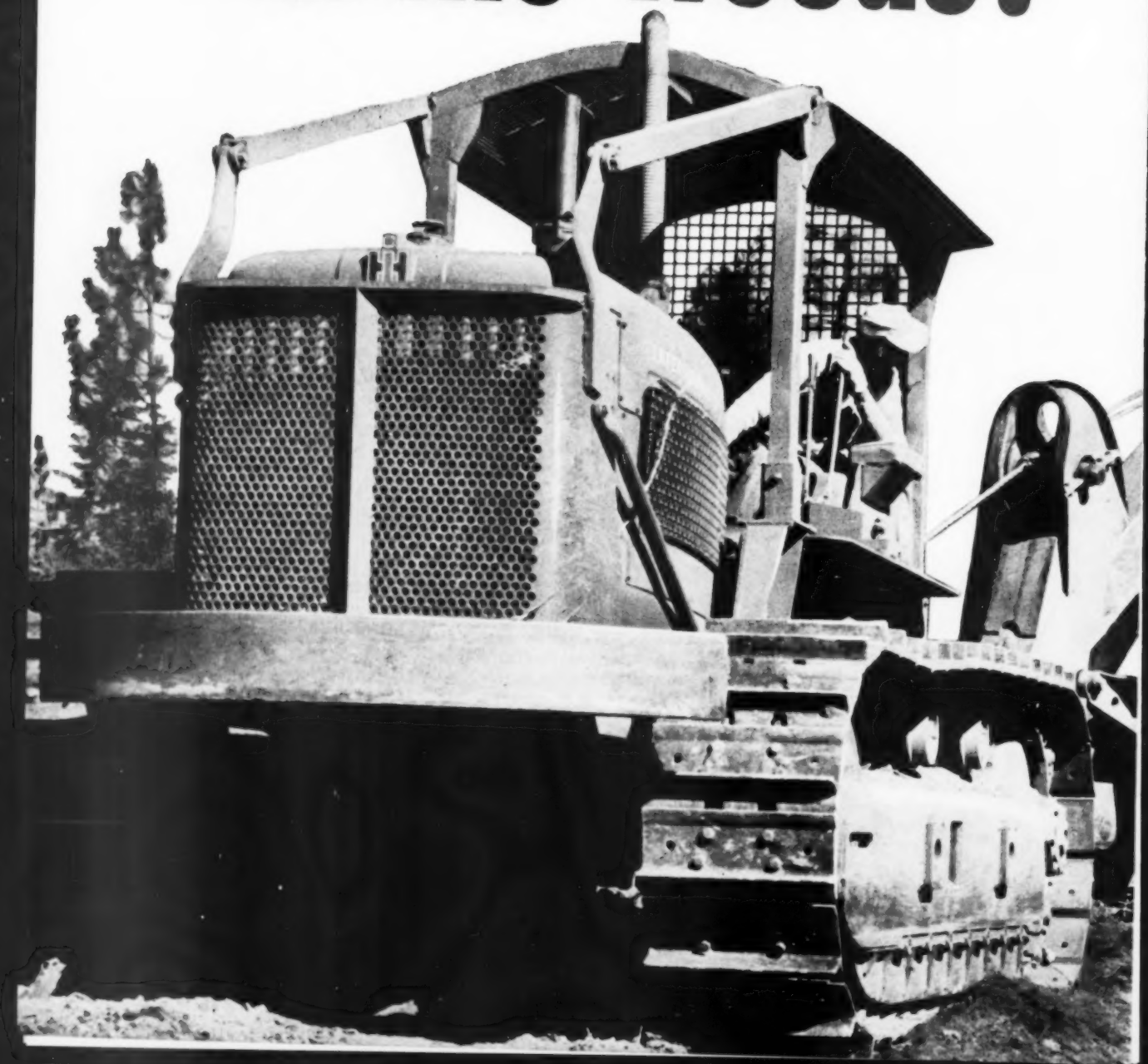
Illustrated 32-page booklet "How to Make Money and Cut Costs with Chain Saws." Write today.

SEE these great saws in action. Ask your dealer for a demonstration today!

HENRY DISSTON & SONS, INC. 93C TACONY PHILADELPHIA 35, PA., U. S. A.

Branches: On the West Coast: 1555 Fourth Ave., Seattle 14, Wash. • 635 N.W. 16th Ave., Portland, Ore. • In Canada: 2-20 Fraser Ave., Toronto 3, Ont.

"Something New in the Woods!"



Superintendent on Shasta show tells how "Big Red"—with International's exclusive Planet Power steering—gets out more logs per day

Out in California's Shasta Forest, J. J. Bartle put two International TD-24 crawlers to work logging Douglas fir. The "Big Red Champs" really made a difference, and Job Superintendent Dave Shaffer tells the inside story:

"When we got our TD-24s, right away we could see they were able to do something new in the woods. Of course we knew a TD-24 would haul record loads of logs, but to be able to turn while carrying these loads was something never done before!

"All the operator had to do was drop one track into low speed and the tractor came around easy, moving right along, power on both tracks. No fuss or time lost for stops and winching on the big logs. It sure makes a difference in the work we get done!"

That's what International's exclusive Planet Power steering gives you, as well as the usual pivot and feathered turns. And here are three more reasons why the Big Red TD-24 is the work champ of the woods:

TD-24 POWER—148 maximum drawbar horsepower—more power than any other crawler on the market.

TD-24 SPEED—8 forward speeds up to 7.8 mph, 8 reverse up to 7.7 mph—gives you the speed to haul bigger loads faster.

TD-24 STARTING—Easy push-button starting in any weather with International's exclusive starting system.

Ask your International Industrial Distributor for details on the TD-24. Ask him, too, about his on-the-job field service and complete shop facilities. Get the low-down! You'll be a TD-24 man from then on in!

INTERNATIONAL HARVESTER COMPANY, CHICAGO 1, ILLINOIS

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POWER THAT PAYS

YOU CAN SEE FOR YOURSELF why the TD-24 is the Champ. Just watch one work in the woods. You'll see it haul bigger loads faster, clear trails faster, and at the same time be easier on the operator. See for yourself!

A real logger's motor grader—big, tough, powerful . . .

Building and maintaining haul roads anyplace in logging country is tough work—and you'll find Adams Motor Graders have plenty of what it takes to carve new roads out of sheer wilderness—*fast, at low cost!*

From massive frames and axles to mighty diesel engines, these machines are engineered with big reserves of power, strength and stamina—handle roughest, toughest jobs with sure-footed speed, ease and economy.

Of special interest to loggers is the new Adams constant-mesh transmission—the strongest and finest ever put into a motor grader. Regularly provides 8 overlapping forward speeds (from a low of 2 mph to 26 mph for transport) and 4 reverse speeds (from 1.9 to 13.7 mph). Where extra-low speeds are desired, optional creeper gears provide 3 additional low forward speeds (¼ to 1¾ mph)—giving you 11 forward speeds in all.

Let your local dealer demonstrate how Adams Motor Graders can speed operations and cut costs—*for you!*

J. D. ADAMS MANUFACTURING CO. • INDIANAPOLIS, IND.

Top Photo: A 100 hp Adams maintaining logging roads for a lumber company in Montana.

Lower Photo: This 100 hp Adams is building roads through rough mountain country for a lumber company in Oregon . . . Like many loggers, this company utilizes powerful Adams Motor Graders as pushers. Picture shows this firm's idea of a pusher, mounted on front of grader.

☆ADAMS
MOTOR GRADERS

McMahan
LOGGING CO.

"well satisfied"
WITH
LORAIN-50
Log Loader

LOADS 6,000,000 BD. FT. ➧

Working in the Mt. Baker National Forest near Darrington, Washington, this Lorain Log Loader, Model 50-K, on 14 ft. long crawler, is handling highly selective salvage logging for McMahan Logging Co. of Arlington, Washington. There is a total of 6 million bd. ft. to be loaded in this area. Equipped with a special gooseneck heeling boom, the Lorain-50 loads logs up to 3,000 bd. ft. in size.

DOUBLES AS A SHOVEL ➧

In addition to its log loading duties, the Lorain-50 is used as a shovel for road building. By changing the front-end, the same machine blazes new roads into logging areas, paying double profits to its owner, Alfred McMahan, who states, "I am well satisfied with my Lorain."

"50" ON CRAWLER OR RUBBER ➧

The Lorain-50 "Series" of Log Loaders offers you a selection of crawler types for low-speed travel . . . and for high-speed, 30 m.p.h. rubber-tire Moto-Cranes for fast mobility to serve widely scattered landing areas. There are more sizes, more types, more mountings and more selection in the Lorain line.

THE THEW SHOVEL CO., LORAIN, OHIO

●WHEN YOU NEED A LOG LOADER, see your nearby Thew-Lorain Distributor. His experience in serving the loggers in your territory is your assurance of the right machine for your show . . . and the right machine for profitable results. Make your Thew-Lorain Distributor your log loading headquarters.

THEW LORAIN

Make Your Own Hose Lines

AEROQUIP HOSE AND FITTINGS ARE MATCHED FOR GUARANTEED PERFORMANCE

● No skill or special training is required to assemble Aeroquip Flexible Hose Lines by hand *in a matter of minutes!* YOU CUT COSTS because Aeroquip fittings are detachable and may be used again and again. YOU REDUCE INVENTORY because with Aeroquip bulk hose and a few fittings you can fill practically all your hose line requirements. YOU REDUCE DOWNTIME because with Aeroquip on hand, quick hose line replacements are available at all times.

Cut hose to length with hacksaw; screw into socket.

Oil nipple and inside of hose liberally.

Screw nipple into socket and hose.

Install fitting on other end; hose line is ready for use.

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AERO-COUPLING CORPORATION

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now...use a smaller tractor on a bigger job

with the HOLT HEAVY-DUTY DOZER

backed by know-how gained from producing the west's most popular line of dozers

There are more than 5000 HOLT dozers now in use throughout the west on farms, ranches and in industry. Work-proven, experience-engineered, HOLT dozers are famous for quality at lowest cost.

From this experience has come the new HEAVY-DUTY — an all-purpose dozer capable of more work for its size than any other dozer on the market.

COSTS LESS THAN ANY COMPARABLE DOZER — CUTS OPERATION COSTS

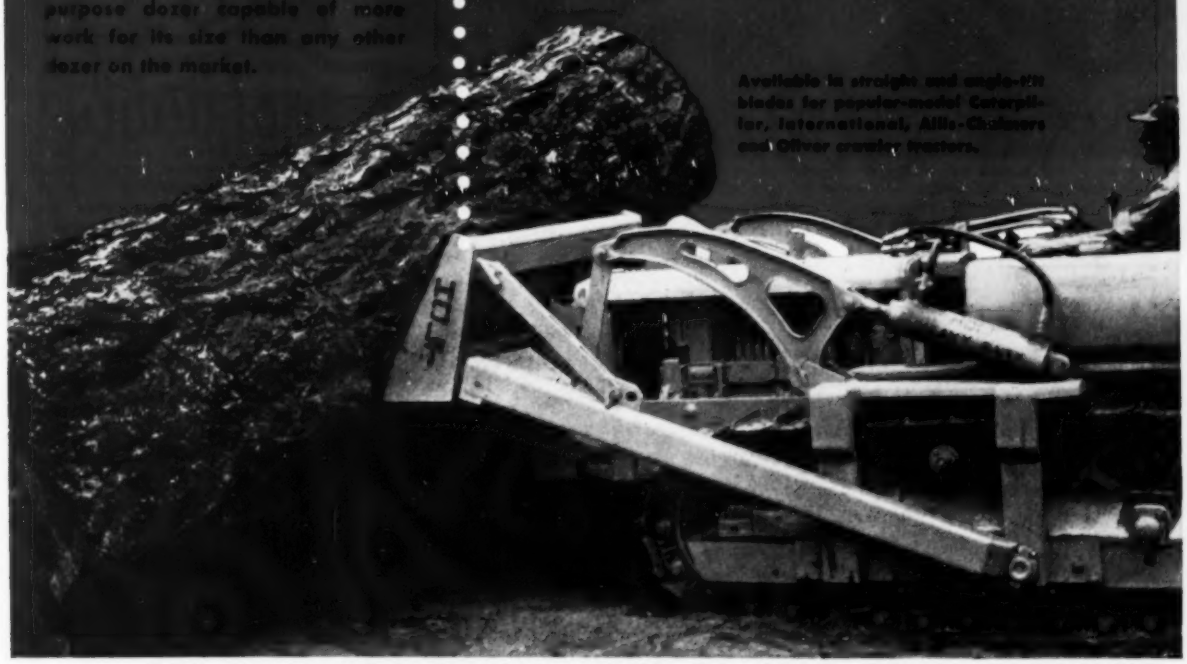
Designed and engineered for highest performance and rugged durability, the new HOLT HEAVY-DUTY Dozer is of revolutionary new, *truly balanced* design, eliminating hundreds of pounds of dead weight without sacrificing stamina.

Hydraulic powered, the HOLT HEAVY-DUTY pump drains power from the tractor only when the blade is actually being raised or lowered - releasing 2 to 5 more horsepower to the dozing job.

Less dead weight, less power needed means a smaller tractor can be used on bigger jobs, with less tractor wear and strain...lower operation and maintenance costs.

The HOLT HEAVY-DUTY can do a lot of "bull cooking" while your *big* rigs are going on to *bigger* things.

Available in straight and angle-dirt blades for popular-model Caterpillar, International, Allis-Chalmers and Oliver crawler tractors.



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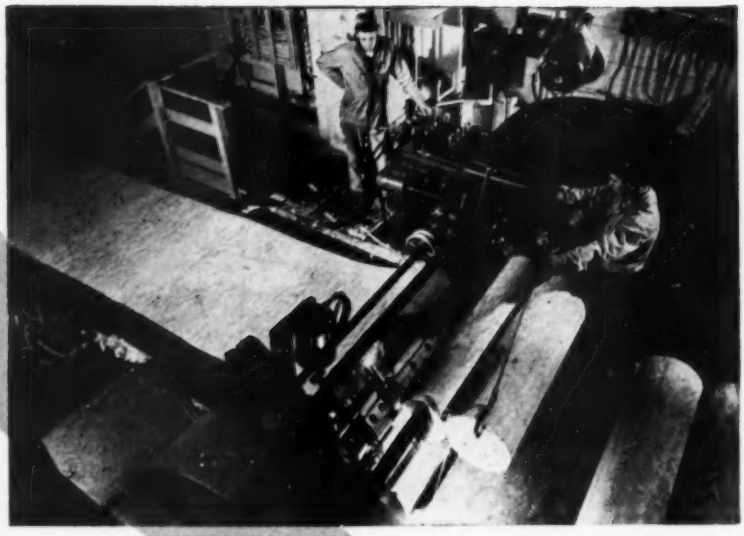

efficiently... rapidly... profitably!

High speed and rugged construction characterize these two Coe machines, of timely interest to efficiency minded plywood manufacturers.

Cores from a larger lathe are halved lengthwise and cut on the Model 242 Coe Lathe which was designed for exceptionally fast, economical operation and equipped throughout with anti-friction bearings.

The flow of the veneer is synchronized with the Coe Model 345 Roll Clipper which accurately cuts the material into core stock of predetermined width.

Perhaps you, too, can effect greater recovery from your present production. Why not ask the Coe sales engineer for further information?

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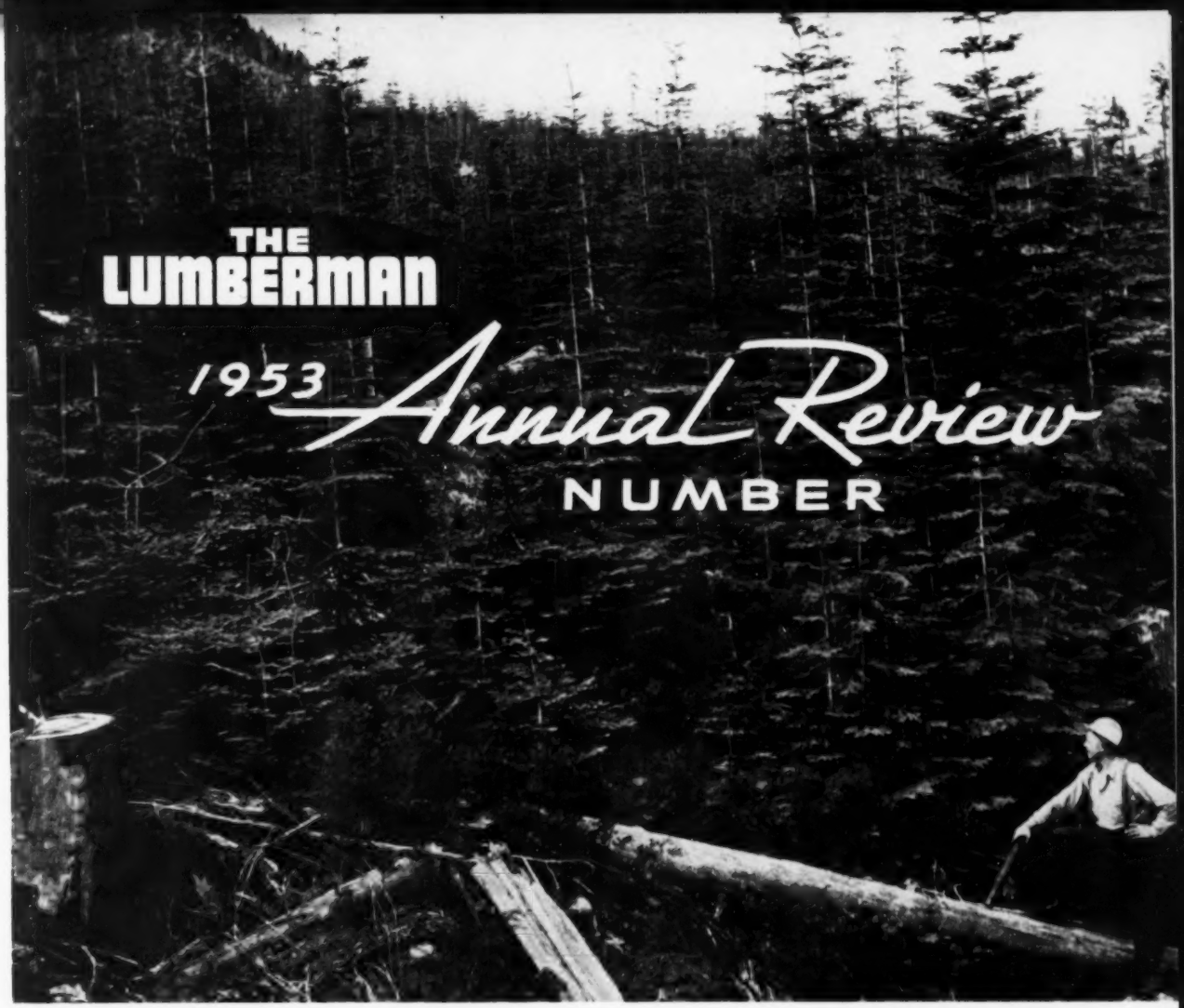


THE OLD AND THE NEW—vigorous young second generation trees push their tops above the stumps of old-growth trees cut years previously. This second-growth stand will be well-protected from fire, insects and disease by conscientious forest management; one day it will be big enough to make piling, poles, lumber, plywood and pulp material. This stand will provide payrolls for people and help provide them with the necessities and comforts of life. In presenting this 1953 ANNUAL REVIEW NUMBER, THE LUMBERMAN reviews the forest industries accomplishments of the past, but, like the forest above, still looks ahead to the future - - - to new developments in forestry, to yet more efficient mechanization of logging, to obtaining greater value and utilization in manufacturing, to a still healthier and steadier industry. (Photo taken in Duncan Bay, British Columbia, Forest Management License by Don Coltman Co., Vancouver, B. C.)

THE FOREST INDUSTRIES - - - 1953

An economy based on a continuous flow of raw material from the forests, managed on a perpetual basis for sustained yield, has been the goal of loggers, lumbermen and foresters for some time. In 1953 the forest industries moved towards this goal with increasing momentum, but there are still many obstacles that must be hurdled. In this introduction to the Forty-second ANNUAL REVIEW NUMBER, THE LUMBERMAN gives attention to the most important accomplishments and to some of the major problems facing the forest industries.

Despite the development of numerous new problems, 1952 was perhaps more nearly a normal year than any since the beginning of World War II. At least the year could be considered normal as far as marketing and operations were concerned. Production was near or above record levels. Prices fluctuated somewhat, but not violently, and by and large the industry enjoyed prosperity.

However, in the broader aspects the year witnessed many developments of fundamental importance to the industry. The devastating beetle attack, while lacking the awsome spectacle of forest fires, has created one of the most serious situations that has ever confronted the industry. The situation is serious not only because of the loss of values represented in the volume of timber killed, but more especially in the disruption of well-

TIMBER RECOGNIZED AS ELIGIBLE FOR LOANS

ordered timber harvesting programs. The timber owner, if he hopes to salvage anything, must immediately formulate new plans to get into the beetle-killed areas and log out the killed timber as soon as possible. This is not always easy. It more likely than not is difficult and costly and may call for new techniques and different equipment.

Statistics indicating losses due to beetles and other insects and disease or wind are sketchy but probably far exceed those due to fire. It should be noted that the beetle attacks are not confined to any one part of America. Attacks of vast extent have occured in Washington, Oregon, Idaho, Montana and Colorado, yet, perhaps the worst and most extensive attack was in New Brunswick, Canada.

In the south, a series of years of deficient rainfall have made the pine (a prodigious water user) more subject to disease and insect attack. Both lumber and paper mill companies have pushed salvage aggressively as situations called for action. Oak wilt is being studied by the Southern hardwood industry, and the pine operators are continuing the program for beetle control.

In 1949 windstorms caused considerable timber damage in some of the Western Pine regions. Direct losses resulted from blowndown which in turn provided ideal breeding conditions for tree-killing insects. One Western pine lumber manufacturing organization harvested 30 million feet of beetle-killed spruce last year as a salvage-sanitation cut. President of this firm stated, "Formerly, when our's was a rail logging operation, we couldn't have done this."

TIMBER INVENTORY

Another subject of great interest and importance is that of timber supply. One significant development of the past year has been the revelation that in some instances timber inventory figures released by federal agencies have shown that the stands of timber are much greater than previous inventories indicated.

Take the case of Montana. A report was released in January entitled "Forest Resources of Montana," known as Forest Resource Report No. 5. Table 19 of this report gives the following information on timber volume estimate for the years named: 1918, 58,000,000,000 Ft. BM; 1925, 50,000,000,000 Ft.; 1932, 49,796,000,000 Ft.; 1938, 49,963,000,000 Ft.; 1945, 52,515,000,000 Ft.; 1949, 55,-960,000,000 Ft.

In other words this Forest Service report indicates there was in 1949 more standing timber in Montana than there was twenty-four years previous, notwithstanding that logging was in progress continuously during all the intervening years. The report states that the apparent discrepancy is due to a more thorough inventory job and by the inclusion of timber not taken into consideration in the earlier studies. This is unimportant. The important thing is that Montana has far more timber than Forest Service figures have up to now indicated.

A similar situation is revealed in a report on the timber situation in Cowlitz County, Wash. The Forest Service report of 1933 indicated that there was 18,582,-000,000 feet of timber in Cowlitz County, whereas the 1949 survey shows a stand of 20,127,000,000 feet. Logging has been in active progress in Cowlitz, as all lumbermen know, during the intervening sixteen years. The report says, "the 8 percent increase in board foot volume of live sawtimber from 1933 to 1949 reflects the closer utilization of the timber mentioned above." The important thing is that Cowlitz had 8 percent more timber in 1949 than the Forest Service records indicated it had in 1933.

A recent report on the standing timber of Kentucky revealed a similar situation.

These instances are cited to indicate that the timber situation is better than some suppose. Not only is there more old growth but the new crop is coming fast. Tree farming is now big business.

NEW MILLS

Many new mills were built in all forest regions in 1952 and more will be built in 1953 and in the years to come. The fact that the Kirby Lumber Co., one of the major producers of lumber in the South, in 1952 announced plans for a new $10,000,000 integrated plant, indicates that company has faith not only in future markets but also that there will be timber to keep its mills in full operation.

TIMBER AS AN INVESTMENT

Another very significant development of the year was the recognition by insurance company banks and mortgage loan agencies that standing timber is eligible as collateral for loan purposes. This has not been true in years gone by. Lumbermen through intelligent management of their timber lands have shown the financial powers that standing timber is a crop possessing great intrinsic values. As an officer of one large mortgage loan agency puts it, "Where there has been a transformation from a destructive to a constructive program of use and management of this natural resource, we have reached the conclusion that sustained yields of timber crops and long-term financing go hand in hand."

CUBIC VS. BOARD SCALE

The matter of establishing the cubic scale rather than the board scale measure gained momentum in 1952.

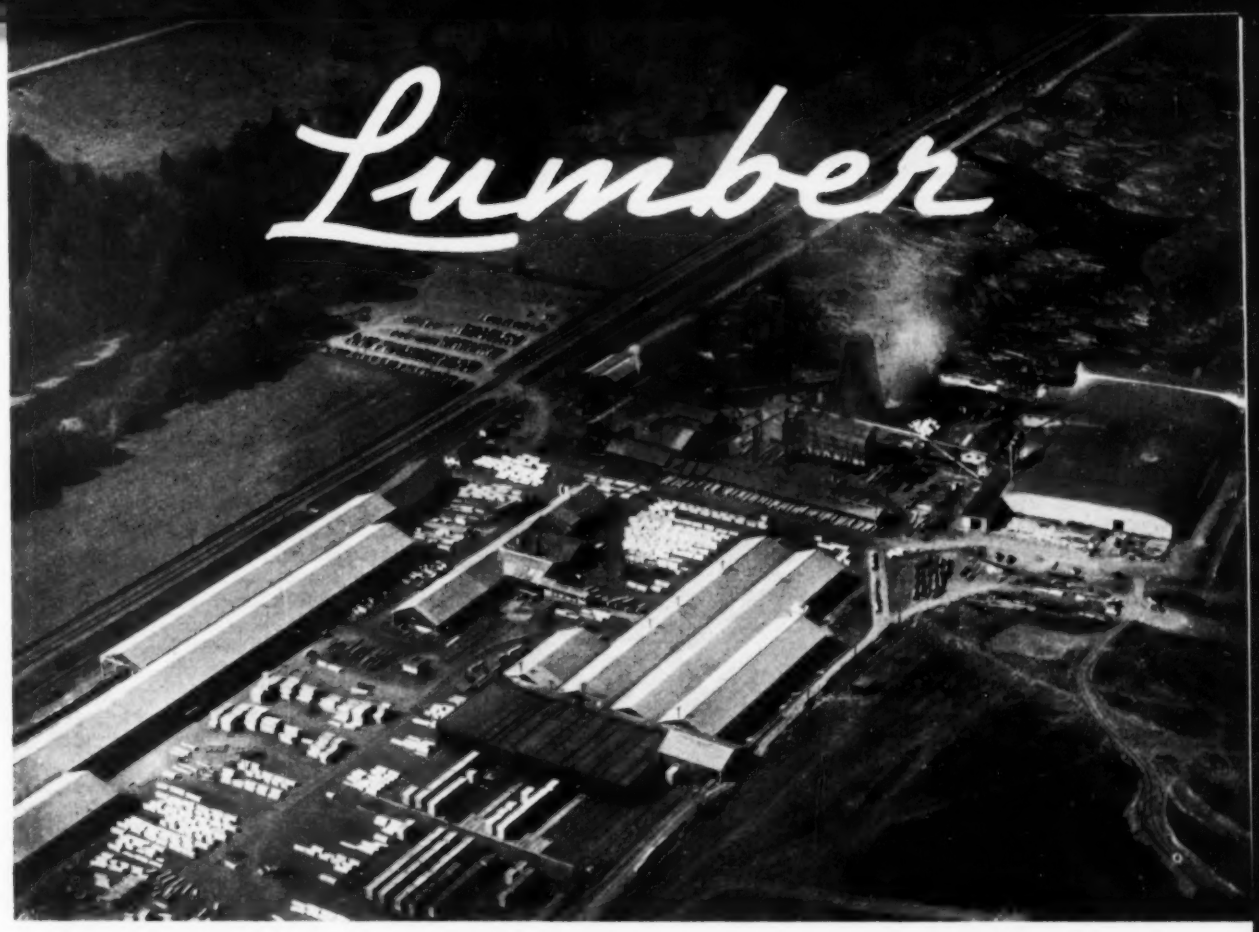
The British Columbia government in its timber sale activities is attempting to make effective the cubic scale. The industry is opposing this move. The Truck Loggers Association at its annual meeting in Vancouver, B. C., in mid-January adopted a resolution asking the government to hold enforcement of the cubic scale measurement in abeyance until further study can be given the subject."

In the Western part of the United States there are numerous adherents of the cubic scale idea, although it is not used to any degree. However, it is a very live subject and one of which the industry will likely hear much in the future.

MILITARY ORDERS

The industry everywhere was able to handle all military orders for forest products with promptness and dispatch. By and large military orders for lumber and other items did not reach any great volume and there appears little reason to expect any material increase in this type of business during the coming year. If and when the Korean war ends, large quantities of forest products may be needed in the rehabilitation of that battle-scarred country.

(Continued on Page 173)



ROSEBURG LUMBER CO. PLANT at Dillard, Ore., Showing Sawmill And Plywood Plant. (Photo by Western Ways, Inc.)

CHANGES OBSERVED IN DOUGLAS FIR REGION

Lumber production in the Douglas fir region during 1952 totaled 10,314,000,000 feet or within 102,000,000 feet of the all time record-breaking 1951 production, according to compilations made by the West Coast Lumbermen's Association.

The continued development and expansion of the chipping industry was an outstanding highlight of 1952. The annual output of chips from so-called "waste" at some 140 mills which have chipping equipment, is estimated as the equivalent of from 500,000,000 to 600,000,000 feet of timber.

The cedar siding market continued dull. Demand for this product has been adversely affected by the change in home styles. One well known cedar siding manufacturer says, "Homes have styles like women's dresses. The great popularity of the ranch type house has meant the use of less cedar siding. The cedar siding manufacturer if he hopes to stay in business must ride with this trend and find new uses for his product. I think it can be done."

The Douglas fir door industry did not prosper in 1952 as did other branches of the forest industries. The increased use of flush doors has been at the expense of the Douglas fir stock door producers. For years most of the stock doors used in the United States were produced in the Douglas fir region. Today many small plants are making flush doors in the Middle West, East and South.

Steam Power Less Widespread

There is a definite trend in the Douglas fir industry toward better utilization and more thoroughly integrated operations.

Sawmills new and old continued to feature use of more air and hydraulic operated machinery. With a good market for chips, sawmill management does not hesitate to discontinue use of steam driven equipment. There are now a number of important sawmills in the Douglas fir region which have no steam power plants.

Many sawmill men are now thinking "hardboard." The possibility of converting their so-called "waste wood," in the mills well as in the woods, into hardboard, appeals to conservation-minded owners.

Salvage in some form is now a very definite phase of many well-managed Douglas fir operations.

In the Douglas fir logging field there apparently is a trend in the increasing number of one and two truck loggers. One northwest mill, to the surprise of the management, found on checking, that it had 135 small loggers on its list of log suppliers.

F.S. Reports on Growth

Sound forest management is beginning to pay off. Facts about tree growth are commencing to become better known. The annual report of Richard E. McArdle, Chief Forester of the United States Forest Service, had something to say about annual growth of Douglas fir. The report revealed that an annual growth rate of 600 board feet per acre, worth at least $12 at current stumpage prices, has been maintained for 13 years following a 1938 thinning in a 100-year-old stand of Douglas fir. **(continued on p. 70)**

CALIFORNIA-NEVADA LUMBER CUT TAKES JUMP

The lumber industry is the seventh most important industry in the state. California is the second state in lumber production and is the highest per capita user of lumber products in the nation. Approximately one-fourth of California's lumber production is used for the harvesting and shipping of California's agricultural crops.

Lumber production of nearly five billion board feet in 1951 set a new record for California and Nevada. California sawmills cut 99.5% of the total or 4 800,000,000 board feet.

The 1951 cut is 14% greater than production in 1950, the previous high year. Also the record cut of 1951 is almost double the production of 1946.

984 Mills in Peak Year

The redwood region, which has about 400 sawmills, produced 42% of total production and the remaining counties, with 409 sawmills reported, produced the other 58%, according to figures released by the California Forest and Range Experiment Station. There were 801 sawmills running in 1951, as compared to 984 mills in 1948, the peak year when there were 971 mills in California and 13 in Nevada.

Humboldt county topped the list as biggest producer, with Mendocino second. The six leading counties—all those cutting more than 200 million board feet were: Humboldt, 1,223,447,000; Mendocino, 585,596,000; Siskkiyou, 374,172,000; Shasta, 301,144 000; Lassen, 257,156,000; Plumas, 243,798,000.

Oregon, of course, is the largest producer of lumber in the United States. In 1940 that state produced 5,202,000,000 board feet, Washington 4,542,000,000 and California 1,956,000,000. In 1945 Oregon produced 5,004,000,000 board feet, Washington 3,258,000,000 and California 2,261,000,000. In 1950 Oregon produced 8,239,000,000 board feet, Washington 3,606,000,000 but in that year California was in the No. 2 spot when it produced a cut of 4,263,000,000. In 1940 California had 286 mills, 1945—457 mills, and in 1948—984 mills.

Marginal Operations Suffer

Due to high stumpage prices and increased general costs, 1952 was probably not a very profitable year for marginal lumber operations in California, but most mills had a very successful year, although for them, too, costs were higher. However, returns were probably lower than in 1951, and some mills felt the squeeze.

The outlook for 1953 is that the first few months look bright. The lumber market is strong, but operators look for some decline in the fall. Prices are always higher in the spring before production hits its stride. The feeling among larger operators is that the market will remain strong for the first several months of the year, and they know this because of the orders on their books.

Trends

There is more and more interest in California in total utilization and onservation.

Several operators have experimented with rubber-tired tractors in the woods, and a number use rubber tired arches.

The Soper-Wheeler Co., large California timberland holder, has put a portable Calvert Machine Works portable mill out in its cut-over lands to improve the stand and utilize logs that were left behind after the first logging. (This operation was completely described in THE LUMBERMAN, November, 1952.)

After experimenting with salvage mills out in the woods, the Rockport Redwood Co., Rockport, Calif., installed a Super 36" gangsaw, purchased from the Mill Engineering & Supply Co., installed it at the mill at Rockport, and tied it in with the existing green chain and the resaw of the big mill.

The Rockport Redwood Co. had experimented with having portable sawmills out in the woods, and trucking cants to the main mill. Later on they built a circular sawmill adjacent to the big band mill, and used this to salvage small fir logs. The purchase of the Super 36" mill was a step further in utilization.

Stud Mill Proves Popular

One of the important developments in California's coastal fir section during the past few years is the introduction of the semi-automatic mill that makes nothing but 2 x 4 studs. It is estimated that there are at least 100 of these mills operating in Washington, Oregon and California. Most of those operating in California are in Mendocino and Humboldt counties.

These mills, usually with air or hydraulically powered carriages and electric double circular saw head rigs, use the lower grade fir logs. They are used as a salvage operation by a number of companies, utilizing tops, and logs unsuitable for other purposes.

In many cases, the studs are taken mechanically from the trimmer to a planer and on into railroad cars or trucks for shipment.

Douglas Fir (continued)

The report called attention to the fact that because probably at least 8 billion board feet of timber was blown down in western Oregon last year, salvaging blow-down timber was a major activity. Salvage operations were begun as soon as possible to prevent insect damage from multiplying the loss that had already occurred.

Co-op Unit's Success Felt

Five years' operation of the Shelton cooperative sustained yield unit in Washington state has produced some substantial results, the report says. In Shelton and McCleary, (Wash.), as well as in other communities near the unit, there has been growth in population, home ownership, bank deposits, stores, schools, and other permanent community facilities since the unit was established.

Commenting on the future outlook for the Douglas fir industry, Hal V. Simpson, executive vice-president of the West Coast Lumbermen's Association, says, "We are conservatively optimistic about the year ahead. We believe the same general conditions which influenced the lumber business this year still apply. We see no let-up in the demand for new houses. We should again top 1,000,000 new homes in 1953. It will take several years to catch up with the demand for new schools. Industrial plant expansion should be substantial. The farm market promises a fertile field for lumber use."

WORKERS EMPLOYED IN THE LUMBER & WOOD PRODUCTS INDUSTRIES AS OF JULY, 1952

(Source: U.S. Department of Labor—Bureau of Labor Statistics)

Industry Group	Employees
Logging Camps and Contractors	63,400
Sawmills and Planing Mills	450,400
Millwork, Plywood and Prefabricated Structural Wood Products	111,900
Wooden Containers	72,400
Miscellaneous Wood Products	58,000
Total	756,100

INTEGRATION 'HITS' B. C. LUMBER INDUSTRY

In British Columbia there has been a pronounced trend towards diversification of utilization, and along with that of lumber British Columbia's production of pulp and paper, plywood and hardboard has steadily climbed.

In mechanization in the woods British Columbia has of necessity, because of the difference in terrain and the greater size of the trees, been in the vanguard in developing and applying higher standards. There has been a broadening consciousness of the importance of timber as a crop, and forest management on a sustained yield basis has been encouraged both by government and private industry.

Utilization of wood on the west coast, has shown an unmistakable trend towards integration. A few years ago only two or three companies accounted for most of the diversified production, but recently practically all the big forest industry enterprises have added pulp mills to their operations so as to make fuller use of the raw material. The MacMillan & Bloedel organization, for instance, whcih until six years ago produced only lumber, plywood or shingles, now has two large pulp mills. Canadian Western Lumber Co., which for many years concentrated on lumber and plywood, is a partner with Pacific Mills (Crown Zellerbach pulp-paper subsidiary) in ownership of Elk Falls Co., the province's newest newsprint mill.

Lumber "Leads to" Pulp

Canadian Forest Products, which produced only lumber, shingles and plywood, until a couple of years ago, now operates a pulp mill at Port Mellon on Howe Sound. Alaska Pine Co., which was primarily interested in lumber, joined with Abitibi Power & Paper Co. two years ago in the formation of Alaska Pine & Cellulose, operating two rayon pulp mills at Port Alice and Woodfibre.

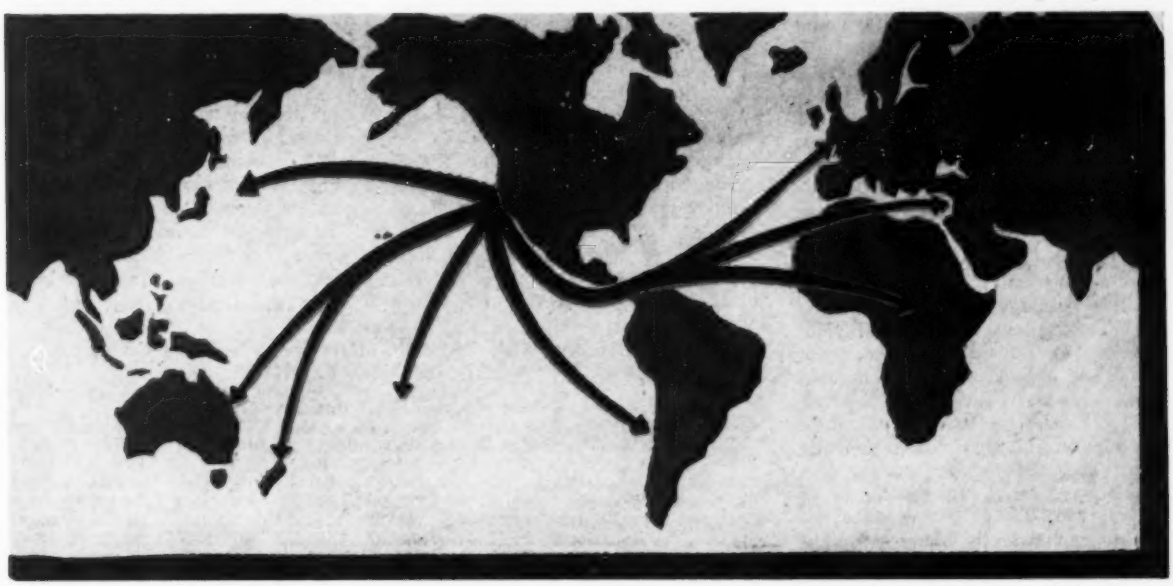
Established pulp and paper companies have also gone more extensively into the lumber business, diversifying in a manner just the reverse of the lumber companies, by taking over sawmills. Companies such as B. C. Forest Products, although their main concern is lumber manufacture, have started large-scale production of chips for the pulp mills. A plywood company, Western Plywood Co., has applied for a forest management license with which to sustain a pulp mill.

These developments, nearly all of them materializing within the past four or five years, indicate how British Columbia industry has aimed at making the maximum economic use of the forest, and Columbia Cellulose Co. at Prince Rupert, with its high alpha pulp mill, could be given as an example of how a vast area of the province previously neglected by industry is being made the source of one of the most highly refined products of wood. A companion enterprise, Celgar Development, will soon start the first fully integrated forest industry, planned as such from its inception, at Castlegar, with pulp and paper mills, hardboard, shingle, sawmill and associated plants.

Trucks Replace Railroading

On the coast of British Columbia there has long been an important independent logging industry. In recent years, however, most of the logs have been produced by logging subsidiaries of a few major industrial enterprises producing not only lumber but pulp and paper, plywood, hardboard, shingles and allied products. Truck logging has gradually taken precedence over rail transportation on the west coast as well as in the interior of British Columbia.

(Continued on Page 171)



DOUGLAS FIR IN WORLD TRADE. Arrows above point to the eight major Douglas fir importing areas scattered throughout the World. 1952 saw a total of over three billion board feet leave the West Coast in waterborne shipments. 1,791,499,251 feet of waterborne shipments were consumed in other parts of U. S., largely the Atlantic Coast, and in Alaska, Hawaii, Puerto Rico, Panama and other unclassified. 1,344,650,091 board feet went out from B. C., Washington, Oregon and California to 25 major importing areas. The trade chart arrows represent Douglas fir shipments from B. C. and the three coastal states as follows: Africa, 145,451,359; Arabia, 14,410,212; Australia, 91,009,581; Japan, 10,654,774; New Zealand, 12,878,040; South America (West Coast), 35,447,582; South Sea Islands, 12,477,043; and United Kingdom, the greatest of all, 845,819,915. British Columbia led the states in '52 (as in '51) with total waterborne shipments of 1,148,052,422. Oregon, Washington and California trailed in that order, with respective shipments of 1,238,454,762; 703,860,563; and 45,781,595. Next to British Columbia, Coos Bay was decidedly the largest producer; close by is Columbia river, followed by a tight race between leader Puget Sound and Grey-Willapa harbor. California and Southern Oregon are the last two items on the list. (Figures courtesy Pacific Lumber Inspection Bureau, Seattle, Wash.)

12-STATE WESTERN PINE REGION PROSPERS

The Western pine region, stretching throughout the 12 Western states, contains 80 million acres of available commercial forest land —exclusive of parks, wilderness areas and tracts unsuitable for growing timber crops. This 80-million acres includes 53 million acres owned or managed by federal government, 23 million acres privately owned and 3 million owned by states or municipalities. The character of timber growing on these forest lands is of paramount consideration. Timber on more than half of the 80 million acres—43,950,00 acres—is classified as saw timber, including 30,760,000 acres old growth and 13,190,000 acres young growth. Remainder of the 80 million includes 19,821,000 acres pole timber and 10,269,000 seedling sapling.

Historically Ponderosa pine has been the most important species of Western pine region. Stands in the region vary from pure to those extensively intermixed with associated species. In addition to Ponderosa pine are Idaho (or Western) white pine, lodgepole pine, sugar pine, white fir, larch, Douglas fir, Engelmann spruce, incense cedar and Western red cedar.

Commercial production has been carried on in the region for 100 years, and satisfactory available statistics date back to about 80 years ago. Production in 1869 totaled 358 million feet, of which Ponderosa pine accounted for the vast majority —285 million, one million feet of Idaho white pine, 35 million sugar pine, 25 million larch and Douglas fir, 12 million "of other woods."

Post-War Production Soars

Production passed one-billion feet per year before turn of the century and moved into 2 billion per year in 1906, jockeyed around the 2 and 3 billion volume until 1923 when production passed 4 billion foot mark and has continuously remained above this point except 1931 through 1935. Excepting these few years, production ran 4 to 5.3 billion per year until 1941 when 6-billion foot mark was passed. Except for three years (1943-44-45) it has since remained consistently above 6 billion feet, passed 7 billion feet in 1948 and varied from 6.6 to 7.6 billion between then and beginning of 1953. Highest annual production was toted up in 1950 with a cut of 7,687,118,000 board feet; 1952 production for Western pine region is estimated at 6.93 billion feet.

In 1951, the latest year for which detailed lumber production data are currently available, the total regional cut of 7,259,679,000 bd. ft. consisted of the following: Ponderosa pine (in which a small percentage of lodgepole pine is included), 52.5%; Idaho white pine, 3.68%; sugar pine, 3.92%; larch and Douglas fir, 21.3%; white fir, 13%; other softwoods, 5.5%.

The change-over from clear cutting to tree selection harvesting in pine generally has become accepted and put into practice; the system has important effect on residual forest stand. Although some firms which logged via rail systems adopted this system, it came into maximum acceptance with "arrival" of truck transportation of logs from woods to plant. In fact, truck logging has proven out as an important factor throughout Western pine logging and lumbering. Even those few organizations still operating their own railroads have, with perhaps a couple of exceptions, adopted trucks and trailers as feeder link bringing logs to the rail line.

Extensive Salvage Helped by Trucks

With advent of truck logging and harvesting timber by tree selection system, logging changed from an intensively concentrated operation to a rather mobile type operation covering extensive areas. Consequently the amount of wood removed per acre of land covered diminished. This system—lightly cutting over extended areas—developed into an important instrument aiding forest management through salvage and improvement cutting. Thus dead and weakened trees, which in an earlier day would have been lost through natural processes of deterioration, are removed from the stand and manufactured into lumber and other utility products.

Fire risks and losses diminished with coming of truck logging and the resultant extensive construction of forest roads. Furthermore the forest road systems will continue to be expanded for years to come, pushing further back into areas not yet opened up and improving road systems already built.

Subsequent to extensive acceptance of trucks as means of logging, industrial two-way radio came into wide use as means of communications. Although not at all confined to pine region, there were over 3,100 forest products industries transmitters on the air at beginning of 1953, these covering a great share of commercial forest lands of United States.

Lodgepole Pine "Discovered"

Lodgepole pine, white fir, spruce and some other species associated with the region were for many years by-passed in favor of "more desirable" species. All have now respectably entered the commercial forest products field, some in several forms.

Lodgepole pine has been "discovered" to be a valuable lumber species, particularly lending itself to filling needs of the Ponderosa pine lumber manufacturer as lodgepole fittingly converts into 1x4 in. and 1x6 in. No. 2 common, which the operator cutting larger logs finds of short supply. Special small sawmills have been installed in some cases for processing this species. Larger mills are known to have added a cant gang for express purpose of processing lodgepole pine logs.

Progressive development in seasoning and technical advancements in finishes, including the knot sealer

(Continued on Page 108)

TOTAL LUMBER PRODUCTION BY STATES IN THE WESTERN PINE REGION*

for the years 1947 through 1951

(Includes Ponderosa pine and the associated species, Idaho White pine, Sugar pine, Larch & Douglas fir, White fir and other softwoods. In thousands of feet, B. M.)

	1947	1948	1949	1950	1951
Arizona	219,987	247,400	216,824	246,804	278,010
California & Nevada	2,424,850	2,607,690	2,327,263	2,280,497	2,650,226
Colorado	144,752	152,291	138,458	151,829	150,741
Idaho	950,137	1,103,592	1,050,809	1,259,382	1,009,671
Montana	499,741	597,884	586,875	639,982	547,541
New Mexico	126,925	124,608	118,449	124,041	129,987
Oregon (East Side)	1,400,787	1,504,027	1,379,311	1,559,194	1,514,058
Oregon (Jackson & Josephine Cos.)	93,017	128,304	113,559	75,532	152,100
South Dakota	57,648	35,380	35,321	34,197	28,255
Utah	37,915	44,485	41,593	46,002	43,995
Washington (East Side)	573,876	620,805	597,143	667,538	683,205
Wyoming	80,805	57,941	54,175	62,120	71,890
Total Western Pine Region Prod.	6,610,440	7,224,407	6,659,780	7,687,118	7,259,679

*Compiled by Western Pine Association, Portland, Ore.

OPTIMISM IN LAKE STATES LUMBER INDUSTRY

By
O. T. SWAN
Secy.-Mgr.
N. Hemlock &
Hardwood
Mfrs. Assn.
Oshkosh, Wis.

Lumber production in Wisconsin and Michigan during 1952 was off 10% from the preceding year. Hardwood production dropped 7% and the cut of Hemlock declined 16%. Softwood shipments exceeded production by 11%.

This region which formerly produced more softwoods than hardwoods is now putting more hardwoods than softwoods into the interstate trade. Two-thirds of the cut is by several thousand relatively small mills. No periodical statistics from the smaller mills are available. Our reports showing trends in the local industry come from 21 firms producing about ¼ of the lumber in Michigan and Wisconsin. Business was relatively slow during the first part of the year, but hardwood business has been active since August 1st and hardwood stocks have declined rapidly since the first of July, taking care of the accumulation of the first six months.

Operators believe that conditions are substantially better than a year ago. There is a heavy log input this winter under favorable weather conditions. The local building trades look forward to good activity this spring.

The furniture industry is one of the chief markets for northern hardwoods. There has been a marked increase of business in the furniture trade and the January furniture shows were well attended with sales in increasing volume.

The Northern hardwood flooring industry is running on an even keel and under the leadership of Donald DeWitt, president, and L. M. Clady, secretary-manager, is conducting an exceptionally good market promotion campaign.

Price Levels Steadier

Market realizations for the Wisconsin and Michigan lumber output are determined for the hardwoods by the competition of Southern hardwoods and in our softwoods by the delivered values of Douglas Fir and White Fir and Southern Yellow Pine. Northern price levels have not fluctuated as much as some of those of our regional competitors.

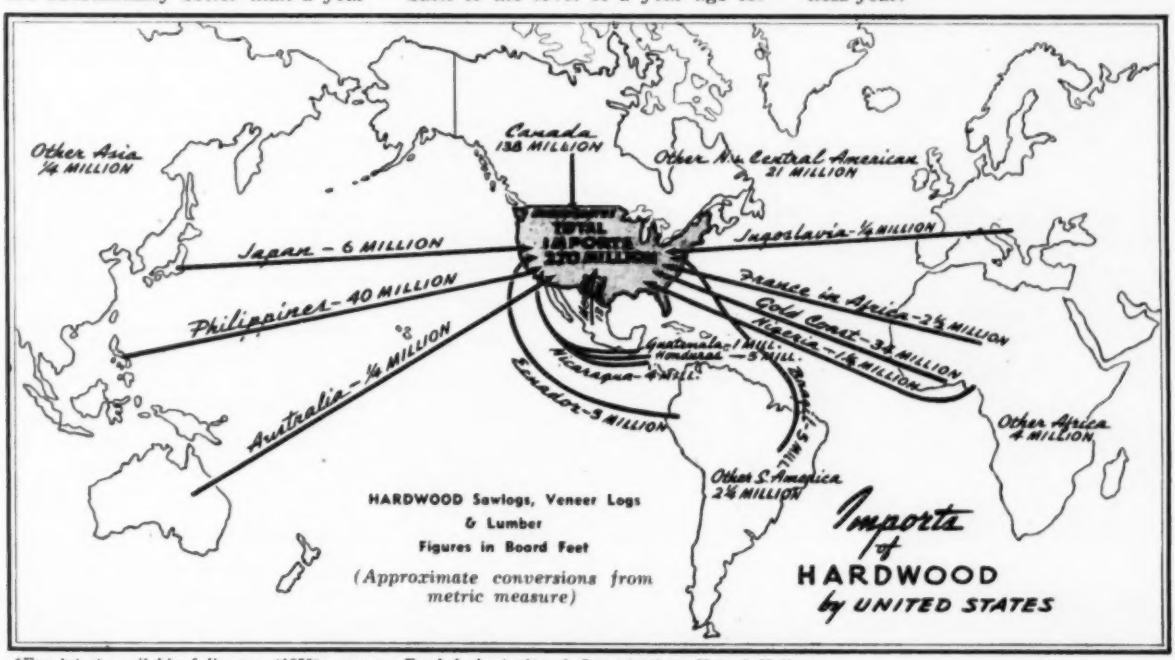
During the past year labor relations have been fairly stable. There have been no industry-wide shut downs due to labor conditions. Employment in the Wisconsin-Michigan timber industries this winter came back to the level of a year ago for the first time in some months.

Northern operators are giving increasing attention to good forest management and working with the local paper industry in conservation activities through state forest information committees employing secretaries to activate the work. In Michigan the industry has an excellent Tree Farm program and in Wisconsin the Committee has promoted "Industrial Forests" consisting of 1,000 acres or more under management practices approved by the State Conservation Commission. The bulk of our timber however, is in the small holdings and farm wood lots.

Finished Products Shipped Far

Most of our lumber is marketed in the Lake States or the adjoining states but the manufactured products such as Hard Maple flooring and furniture are shipped to every state in the Union.

The Association has more members than ever before. Our interests are concentrated in a relatively small area. We are in a wonderful industrial and agricultural part of the United States with many local industries vitally interested in the Lake States timber supply. Timber owners, sawmill men, hardwood veneer and plywood producers, Maple flooring manufacturers and the furniture industry are feeling optimistic and looking forward to a good business year.



*For latest available full year (1050); source—Food & Agricultural Organization—United Nations.

SOUTH CONTINUES STEADY DEVELOPMENT

The basic lumber and timber industry in the Southern states rates first in number of active establishments, second in employes or those engaged in its operation, sixth in value of industrial plants, fourth in payrolls and profits, seventh in expenditures for materials and services, and fifth in receipts.

Of the total 17,561 active establishments given in a recent compilation, a large percentage is composed of so-called portable mills. This term may include the unit actually taken into the woods and moved from one log-bunching site to another on wheels, or a more stable operation in which the sawing equipment is mounted on a good foundation, protected from the weather, and transported to another site only when a half-million feet of stumpage (Doyle Scale) is available.

Portable Mills Fluctuate

The portable mills flourish in numbers when lumber demand is active and profit margins high. When the market slacks, a substantial percentage may become inactive. This has been accelerated in recent years by labor costs and expensive stumpage. Additionally there is a constant changing created by inexperienced or under-capitalized operators entering the business; then leaving it.

The bulk of portable mill production is delivered as rough green lumber to a concentration yard, or to a sawmill where a concentration yard function is also conducted. Here the rough lumber is dried, and processed for market.

Much has been accomplished in the past few years by owners of "sustained yield" forest land to bring their mills up to modern industrial plant standards. This has been done through installation of new equipment and accessories within a mill unit, replacement of production units as a whole, or straight-out building of a new mill. In almost every case, the improvements have included modern facilities for re-manufacturing of lumber to produce items closer to final market form. Modernization has included every phase of lumber handling and processing. These programs have not been limited to just the largest mills but have been carried out effectively by producers all the way down to the 30-M feet per day classification.

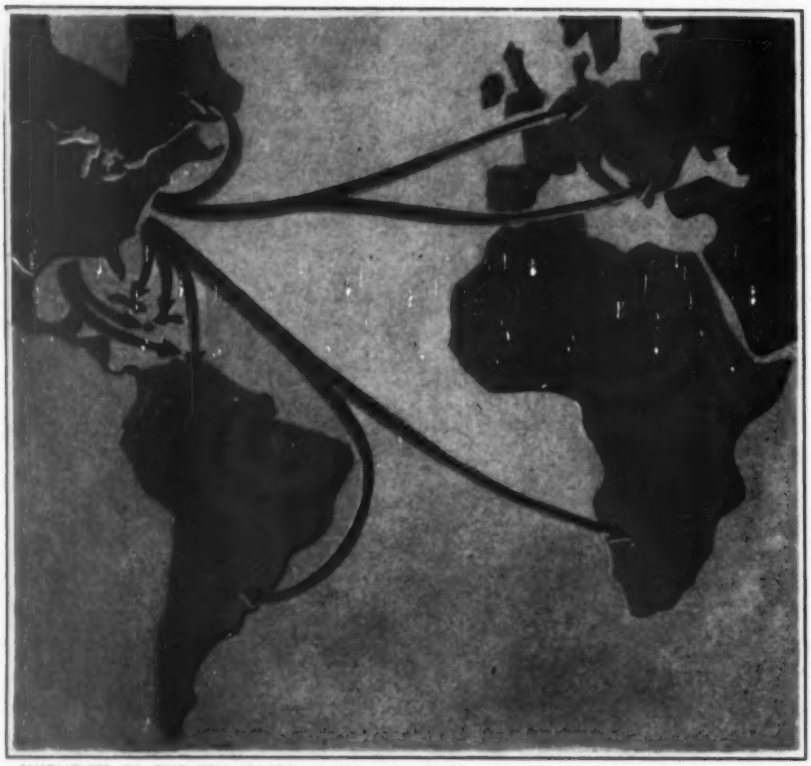
Small Mills Look to Chips

Successful introduction in 1952 of a mechanical log debarker at a southern lumber mill opened the way to substantial reduction of wood waste in the industry. In this case, the bark-free wood was put through a chipper and screen installation and the product sold to a paper mill. Yield per 1000 feet of pine lumber was equivalent to the quantity of chips recovered from a cord of pulpwood. It is anticipated that these installations will become widespread, reaching down to the 30-M mill and providing impetus for further mechanization.

Modernization of dry kilns has been almost universal among improvement programs. The uncertainty of the times and slowness of the market during 1952 had a tendency to discourage many operators, particularly those operating on costly logs, resulting in a supply business level below that of the preceding year. Uncertainty was blamed in part to the Korean War and Election Year.

High Costs to Hold

The viewpoint, however, changed as 1953 emerged. Said a machinery supply house executive, "As we go into the new year there is a general feeling of progress and instead of our economy going back and leveling off at a previously determined level, it is the general feeling that the leveling off period will be somewhat in line with where we are. In other words, there is a feeling among the lumbermen that stumpage is going to remain high along with labor. There will be no



SHIPMENTS TO THE TEN MAJOR southern pine lumber importing areas of the World. The nearby West Indies make up one of the traditionally steady trading areas for Southern pine lumber, with Cuba by far the leading importing country. Figures compiled by the Southern Lumber Exporters Association, Inc., Washington, D. C., show 35 importers for 1952, with the ten leaders for 1949, 1950, 1951 and the first nine months of 1952 in order of importance follows: Cuba, Venezuela, Union of South Africa, Canada, British West Indies, Dutch West Indies, Germany, Haiti and Uruguay. The big pre-war leaders, Argentina and United Kingdom, have taken little or no Southern pine exports for several years.

AVERAGE SHIPMENTS FOR THE LAST FOUR YEARS to the ten leading southern pine importers are as follows, covering the period 1949 through Sept. 30, 1952. Figures in board feet.

Cuba	45,792,000
Venezuela	7,837,000
Union of South Africa	7,382,000
Canada	5,837,000
British West Indies	3,761,000
Dutch West Indies	3,609,000
Germany	3,410,000
Haiti	2,960,000
Uruguay	2,879,000

reduction in cost of manufacture except through mechanization.

"The users of lumber are demanding more accurate manufacture and they are demanding that they get what they pay for; in other words, grades must be up to par.

"With these prevailing factors the lumbermen today must concentrate their efforts on the conversion and reduction of waste from the stump to the finished product, which means re-manufacturing at the mill and more accurate manufacturing of lumber."

Utilization in Woods Better

There have been gains in recent years in utilization of tree tops remaining after the log cut has been made. It is difficult to say specifically the extent to which lumber companies dispose of thinnings, tops, etc., to the pulp mills in the Southern states, but this item is a very important factor in the management of their forest lands and is definitely on the increase.

Southern logging is subject to diverse practices but largely on a common basis in which the independent contractor is the key to economic efficiency. It is common practice among medium and large companies to have contractors fell and buck the trees, bunch the logs. Trucking contractors may load out and haul the logs either to the mill or a landing along a good road for transportation by large company owned units to the mill. The contractor in the woods frequently operates one of the tractors used in bunching, and may have a partner who handles the loader or a truck while supervising this part of the task. These contractors are not to be classified as major companies but they do qualify for a role in the American free enterprise system, enjoying the appropriate financial return as well as satisfaction in their own business.

Single Stands Vary Output

In forest management, lumber and paper mill companies find harmony. Woodland management is for a fully

(Continued on Page 171)

LUMBER PRODUCTION OF SOFTWOODS AND HARDWOODS BY GEOGRAPHIC REGION AND STATE FOR ENTIRE UNITED STATES*—1951

(Figures given in thousands of board feet, lumber tally.)

Geographic Region and State	Total
UNITED STATES, TOTAL	36,748,397
East, total	18,271,197
New England and Middle Atlantic States	2,296,976
Lake, Central and Prairie Sts., total	3,155,850
Missouri	152,855
Tennessee	521,631
South Atlantic States, total	4,369,590
North Carolina	2,025,889
South Carolina	915,427
East Gulf States, total	4,321,271
Alabama	1,535,960
Georgia	2,192,532
Lower Mississippi States, total	4,127,510
Arkansas and Oklahoma	1,058,785
Louisiana	846,512
Mississippi	1,188,611
Texas	1,033,602
West, total	18,477,200
Oregon	8,131,039
Washington	3,538,473
California and Nevada	4,546,393
Idaho	1,009,786
Montana	548,621
South Rocky Mountain States	702,888

* U. S. Census Bureau

VOLUME AND VALUE OF TIMBER CUT FROM LANDS OF THE DEPARTMENT OF INTERIOR

(Includes Bureau of Land Management, Bureau of Indian Affairs, Fish & Wildlife Service, Bureau of Reclamation and the National Park Service. In the case of the latter, the data reflect salvage of either burned or blown down timber.)

	M Bd. Ft.	*Value*
1940	689,905	$ 1,925,825
1941	849,128	2,272,830
1942	970,863	2,674,692
1943	992,533	3,031,556
1944	902,634	3,368,918
1945	1,048,682	4,294,812
1946	909,131	3,631,169
1947	1,095,305	5,000,549
1948	1,247,683	6,861,057
1949	1,152,655	10,200,539
1950	1,116,009	10,557,521
1951	1,338,722	14,639,221
1952	1,272,772	18,431,724

LUMBER PRODUCTION BY KIND OF WOOD FOR THE UNITED STATES*—1951

(Figures given in thousands of board feet, lumber tally.)

Kind of Wood	1951 United States Total
TOTAL PRODUCTION	36,748,397
Softwoods, total	29,071,866
Cedar, incense	60,490
Cedar, Port Oxford	9,203
Cedar, western red[1]	229,269
Fir, Douglas	10,056,324
Fir, white[2]	1,181,171
Hemlock	1,484,806
Larch and tamarack	293,815
Pine, ponderosa	3,633,762
Pine, southern yellow	8,514,353
Pine, sugar	405,660
Pine, white[3]	1,297,932
Redwood	957,117
Spruce, Engelmann	154,450
Spruce, Sitka	106,198
Hardwoods, total	7,676,531
Ash	97,382
Beech	331,877
Birch	137,158
Cherry	54,310
Cottonwood and aspen	240,449
Elm	163,994
Gum, red and sap (sweet)	791,843
Gum, tupelo and black	368,076
Maple	581,102
Oak[4]	3,562,379
Yellow poplar	749,975

*U. S. Census Bureau.
1 Includes Alaska yellow cedar.
2 Includes noble, red and silver firs.
3 Includes Idaho (Western) white pine, and eastern red and jack pines.
4 Excludes production of oak in Western States.

PRODUCTION AND VALUE OF FOREST PRODUCTS, 1951

	WASHINGTON		OREGON	
	Production	Value	Production	Value
Lumber—				
Douglas fir region	3,198,000 M board ft.	$257,000,000	7,219,000 M board ft.	$580,000,000
Ponderosa pine region	683,200 M board ft.	59,000,000	1,514,060 M board ft.	132,000,000
Plywood	1,435,698 M square ft.	143,570,000	1,189,409 M square ft.	118,941,000
Shingles	2,378,620 squares	21,400,000	594,650 squares	5,350,000
Fir Doors	4,802,000 each	24,010,000	2,020,000 each	10,100,000
Pulp	2,053,000 tons	256,625,000	631,000 tons	78,875,000
Paper	1,026,000 tons	87,110,000	440,000 tons	37,400,000
Christmas Trees and Greens		3,000,000		1,000,000
		$851,715,000		$963,666,000
Comparative Value (1950)		$779,295,000		$880,007,000
(1949)		$608,520,000		$658,160,000

EMPLOYMENT

Division	Number	Wages
Logging, Lumbering & Wood Products	60,748	$239,956,369
Furniture & Fixtures	3,493	12,058,133
Pulp, Paper & Allied Products	15,100	63,372,221
	79,341	$315,386,723

EMPLOYMENT

Division	Number	Wages
Logging, Lumbering & Wood Products	84,855	$345,275,595
Furniture & Fixtures	3,252	11,148,163
Paper & Allied Products	4,734	19,933,014
	92,841	$376,356,772

(Above statistics compiled by the Industrial Forestry Association, Portland, Oregon, who obtained individual figures from various industry associations.)

THE HUNDRED WESTERN SAWMILLS

which produced the most lumber in 1952

The LUMBERMAN again presents its annual compilation of the one hundred Western and one hundred Southern companies which produced the most lumber in 1952. Diligent effort has been made to obtain production figures from mills which may have qualified for inclusion in these compilations. Some companies, in reporting their 1952 production, have combined the cut of several mills although in most instances the cut of individual units has been reported separately. The production of the various units of the Weyerhaeuser Timber Co., is not included in this compilation. There may be two or three other companies eligible for the Western list at least, from which reports had not been received at press time. The LUMBERMAN extends its sincere thanks to all those mills which cooperated in making this survey possible.

Firm Name	*Location*	*Lbr. Ft. BM.*
Potlatch Forests, Inc.,	Lewiston, Ida.	258,632,346
Long-Bell Lbr. Co.,	Longview, Wash.	228,157,386
Willamette Valley Lbr. Co.,	Dallas, Ore.	210,000,000
Fruit Growers Supply Co.,	Los Angeles, Calif.	174,642,000
Coos Bay Lumber Co.,	Coos Bay, Ore.	158,645,644
C. D. Johnson Lbr. Corp.,	Toledo, Ore.	156,908,000
MacMillan & Bloedel Ltd., Can. White Pine Div.,	Vancouver, B.C.	148,278,000
Canadian West. Lbr. Co.,	Fraser Mills, B.C.	146,088,479
The Pacific Lbr. Co.,	Scotia, Calif.	126,578,770
Irwin & Lyons Lbr. Co.,	North Bend, Ore.	124,541,377
Edward Hines Lbr. Co.,	Hines, Ore.	122,789,430
Roseburg Lbr. Co.,	Roseburg, Ore.	119,688,000
Canadian Forest Products, Eburne Div.,	Vancouver, B.C.	112,780,728
MacMillan & Bloedel Ltd., Somass Div.,	Port Alberni, B.C.	108,565,000
Simpson Logging Co.,	Shelton, Wash.	107,905,532
MacMillan & Bloedel Ltd., Chemainus Div.,	Chemainus, B.C.	106,828,000
MacMillan & Bloedel Ltd., Alberni-Pac. Div.,	Port Alberni, B.C.	102,663,495
Pope & Talbot, Inc.,	St. Helens, Ore.	100,772,663
Santiam Lumber Co.,	Lebanon, Ore.	98,198,000
St. Paul & Tacoma Lbr. Co.,	Tacoma, Wash.	97,400,000
Southwest Lumber Mills,	McNary, Ariz.	96,289,000
McCloud Riv. Lbr. Co.,	McCloud, Calif.	93,872,101
Hammond Lbr. Co.,	Samoa, Calif.	93,408,593
Alaska Pine Co. Ltd.,	Vancouver, B.C.	92,827,244
Anaconda Copper Min. Co.,	Bonner, Mont.	89,063,415
Diamond Match Co.,	Spokane, Wash.	85,120,000
Walton Lumber Co.,	Everett, Wash.	85,000,000
Union Lumber Co.,	Fort Bragg, Calif.	85,000,000
Diamond Match Co.,	Chico, Calif.	85,000,000
Coos Head Tbr. Co.,	Coos Bay, Ore.	83,260,000
Brooks, Scanlon Lbr. Co.,	Bend, Ore.	82,756,000
J. Neils Lumber Co.,	Libby, Mont.	81,447,651
B. C. Forest Products, Cowichan Div.,	Youbou, B.C.	81,000,000
Universal Box Co.,	Vancouver, B.C.	80,110,264
Oceanside Lumber Co.,	Garibaldi, Ore.	78,550,000
Pickering Lumber Co.,	Standard, Calif.	78,692,910
Western Forest Ind.,	Honeymoon Bay, B.C.	77,713,839
B. C. Mfg. Co. Ltd.,	New Westminster, B.C.	76,800,000
B. C. Forest Products Ltd.,	Victoria, B.C.	76,100,000
Pope & Talbot Inc.,	Oakridge, Ore.	76,004,027
Medford Corp.,	Medford, Ore.	74,755,737
Diamond Lumber Co.,	Glenwood, Ore.	73,276,980
Ohio Match Co.,	Couer d'Alene, Ida.	72,800,000
Tahsis Co., Ltd.,	Vancouver, B.C.	72,711,254
R. L. Smith Lumber Co.,	Anderson, Calif.	71,771,599
Long-Bell Lbr. Co.,	Weed, Calif.	69,000,000
Pac. Pine Co. Ltd.,	New Westminster, B.C.	68,423,375
Booth-Kelly Lbr. Co.,	Eugene, Ore.	67,872,286
Schafer Bros. Lbr. & Shg. Co.,	Aberdeen, Wash.	66,259,301
California Barrel Co.,	Arcata, Calif.	62,768,000
Van Vleet Lbr. Co.,	Rainier, Ore.	61,408,310
Boise Payette Lbr. Co.,	Boise, Ida.	61,343,016
Pope & Talbot Inc.,	Port Gamble, Wash.	60,668,991
Umpqua Plywood Corp.,	Myrtle Creek, Ore.	60,493,830
Oregon American Lbr. Co.,	Vernonia, Ore.	60,235,208
Robert Dollar Co.,	Glendale, Ore.	59,916,759
Cascade Lumber Co.,	Yakima, Wash.	59,349,000
Cape Arago Lbr. Co.,	Empire, Ore.	58,434,000
Long-Bell Lumber Co.,	Gardiner, Ore.	57,722,580
Dolly Varden Lumber Co.,	Arcata, Calif.	57,553,000
Setzer Products Co.,	Sacramento, Calif.	56,555,000
Engle & Worth Lbr. Co.,	McMinnville, Ore.	53,378,936
Edward Hines Lbr. Co.,	Westfir, Ore.	52,083,659
Hudspeth Pine Corp.,	Prineville, Ore.	51,549,841
Biles-Coleman Lumber Co.,	Omak, Wash.	50,820,000
Hillcrest Lumber Co.,	Mesatchie Lake, B.C.	50,428,000
Klamath Basin Pine Mills,	Klamath Falls, Ore.	48,661,810
J. Herbert Bate Co.,	Wallowa, Ore.	48,423,460
Magnolia Lbr. Co.,	Ashland, Ore.	47,762,527
Inman-Poulson Lbr. Co.,	Portland, Ore.	47,000,041
J. Neils Lbr. Co.,	Klickitat, Wash.	46,998,401
Long-Bell Lbr. Co.,	Eugene, Ore.	46,949,505
McIntosh Lbr. Co.,	Blue Lake, Calif.	46,537,775
L. H. L. Lbr. Co.,	Carlton, Ore.	46,277,190
Lincoln Lbr. Co.,	Lincoln, Wash.	45,669,942
B. C. For. Prod. Co. Ltd.,	Hammond, B.C.	45,115,316
Elk Lumber Co.,	Medford, Ore.	44,000,760
Collins Pine Co.,	Chester, Calif.	43,706,000
Seaboard Lbr. Co.,	Seattle, Wash.	42,685,015
Shepard & Morse Lbr. Co.,	Westport, Ore.	42,618,598
Valsetz Lumber Co.,	Valsetz, Ore.	42,460,331
New Mexico Tbr. Co.,	Albuquerque, N.M.	42,000,000
Cal-Ida Lbr. Co.,	Auburn, Calif.	41,945,000
Stebco, Inc.,	Vancouver, Wash.	41,942,565
Winton Lbr. Co.,	Martell, Calif.	41,777,740
Clay Brown Lbr. Co.,	Portland, Ore.	41,757,232
Gilchrist Lbr. Co.,	Gilchrist, Ore.	40,851,000
Rosboro Lbr. Co.,	Springfield, Ore.	40,147,000
Michigan-Calif. Lbr. Co.,	Camino, Calif.	40,000,000
Rockport Redwood Co.,	Rockport, Calif.	39,492,214
M. B. King Lbr. Co.,	No. Vancouver, B.C.	39,369,000
Westside Lbr. Co.,	Tuolumne, Calif.	39,000,000
Hallock & Howard Lbr. Co.,	Winchester, Ida.	38,403,000
Deer Park Lbr. Inc.,	Deer Park, Wash.	38,296,574
Fischer Lbr. Co.,	Marcola, Ore.	38,072,000
Dwyer Lbr. Co.,	Portland, Ore.	38,021,718
Timberland Lbr. Co.,	New Westminster, B.C.	38,000,000
Giustina Bros.,	Eugene, Ore.	37,875,007
Stimson Lbr. Co.,	Forest Grove, Ore.	37,450,622
Col-Hudson Lbr. Co.,	Bradwood, Ore.	37,021,353

PRODUCTION OF ONE HUNDRED MAJOR SOUTHERN SAWMILLS IN 1952

Firm Name	*Location*	*Lbr. Ft. BM.*
Dierks Lbr. & Coal Co.,	Kansas City, Mo.	85,358,000
Kirby Lumber Corp.,	Houston, Texas	72,274,000
Frost Lumber Industries,	Shreveport, La.	72,000,000
Southern Pine Lumber Co.,	Diboll, Texas	70,000,000
Russellville Lumber Co.,	Sumper, S. C.	67,317,981
William Ritter Lumber Co.,	Columbus, Ohio	61,793,000
E. L. Bruce Co.,	Memphis, Tenn.	60,154,000
Crossett Lumber Co.,	Crossett, Ark.	51,871,869
Anderson-Tully Company,	Memphis, Tenn.	48,810,372
W. T. Smith Lumber Co.,	Chapman, Ala.	45,622,211
Roy O. Martin Lumber Co.,	Alexandria, La.	44,590,104
D. L. Fair Lumber Co.,	Louisville, Miss.	43,000,000
Bradley Lumber Co.,	Warren, Ark.	37,825,089
Southern Lumber Co.,	Warren, Ark.	37,820,000
Edens-Birch Lumber Co.,	Corrigan, Texas	36,000,000
W. T. Carter & Bros.,	Camden, Texas	36,000,000
Mansfield Lumber Co.,	Shreveport, La.	34,000,000
Texas Long Leaf Lumber Co.,	Trinity, Texas	32,710,935
Whitener Lumber Co.,	Newberry, S. C.	31,250,000
Williams & McKeithan,	Lynchburg, Va.	31,117,000
Fordyce Lumber Co.,	Fordyce, Ark.	31,000,000
Scotch Lumber Co.,	Fulton, Ala.	30,000,000
Woodward-Walker Lumber Co.,	Taylor, La.	28,634,187
Hillyer-Deutsch-Edwards,	Oakdale, La.	28,614,187
Mower Lumber Co.,	Charleston, W. Va.	28,000,000
W. E. Belcher Lumber Co.,	Centerville, Ala.	26,541,582
F. A. Powell Lumber Co.,	Luverne, Ala.	26,000,000
Gulf Lumber Co.,	Mobile, Ala.	25,980,409
Camp Mfg. Co.,	Franklin, Va.	25,002,000
Angelina County Lumber Co.,	Keltys, Texas	24,680,223
Green Bros. Lbr. Co.,	Elizabethtown, N. C.	24,295,050
Mobile River Sawmill Co.,	Mt. Vernon, Ala.	24,222,666
Ozan Lumber Co.,	Prescott, Ark.	24,041,958
Louisiana Central Lumber Co.,	Clarks, La.	23,043,669
Barnes Lumber Co.,	Charlotteville, Va.	23,000,000
Foley Lumber Industries,	Foley, Fla.	22,872,714
Walton Lumber Co.,	Dumbarton, Va.	22,526,354
Vestal Lumber & Mfg. Co.,	Knoxville, Tenn.	21,917,876
J. A. Bentley Lumber Co.,	Zimmerman, La.	21,444,499
Pat Brown Lumber Co.,	High Point, N. C.	21,028,553
A. DeWeese Lumber Co.,	Philadelphia, Miss.	20,867,761
Henderson-Molpus Co.,	Philadelphia, Miss.	20,536,000
Alger-Sullivan Lumber Co.,	Century, Fla.	20,037,000
Spaulding Lumber Co.,	Chase City, Va.	20,000,000
Foster Lumber Co.,	Fostoria, Texas	19,915,742
Gurdon Lumber Co.,	Gurdon, Ark.	19,200,000
Sledge Lumber Co.,	Whiteville, N. C.	19,000,000
Lightsey Brothers,	Miley, S.C.	18,765,000
Kellogg Lumber Co.,	Alexandria, La.	18,190,000
Holly Hill Lumber Co.,	Holly Hill, S. C.	17,700,000
Urania Lumber Co.,	Urania, La.	16,941,069
Chicago Mill & Lumber Co.,	Helena, Ark.	16,883,000
Kurth Lumber Co.,	Jasper, Texas	16,562,788
Farris Hardwood Lbr. Co.,	Nashville, Tenn.	16,000,000
J. F. Browning Lumber Co.,	Riceboro, Ga.	16,000,000
L. R. Foreman & Sons,	Elizabeth City, N. C.	16,000,000
Clancy Lumber Co.,	Grayson, Ala.	15,100,000
W. A. Belcher Lbr. Co.,	Birmingham, Ala.	15,000,000
Vredenburgh Sawmill Co.,	Vredenburgh, Ala.	15,000,000
Crosby Forest Products,	Picayune, Miss.	15,000,000
Sterling Lbr. & Sup. Co.,	Goodwater, Ala.	15,000,000
J. L. Williams & Sons,	Sheridan, Ark.	15,000,000
S. E. Lackey Lbr. Co.,	Forest, Miss.	14,638,000
Wax Lumber Co.,	Woodville, Miss.	14,730,333
Nickey Bros.,	Memphis, Tenn.	14,000,000
Gennett Lumber Co.,	Asheville, N. C.	14,000,000
La. Long Leaf Lumber Co.,	Fisher, La.	14,000,000
La. Cypress Lbr. Co., Inc.,	Ponchatoula, La.	13,678,568
C. L. Gray Lumber Co.,	Meridian, Miss.	13,588,373
Chapman & Dewey Lbr. Co.,	Memphis, Tenn.	13,234,337
J. M. Jones Lumber Co.,	Natchez, Miss.	13,000,000
Millen Lumber Co.,	Millen, Ga.	12,780,468
Alexander Bros. Lbr. Co.,	Columbus, Ga.	12,689,421
O. L. Payne,	Wells, Texas	12,630,586
A. B. Carroll Lumber Co.,	Hurtsboro, Ala.	12,433,968
Marshall Lumber Co.,	Marion, N. C.	12,346,000
T. R. Miller Mill Co.,	Brewton, Ala.	12,269,000
Bate Lumber Co.,	New Bern, N. C.	12,000,000
Edens-Birch Lumber Co.,	Cleveland, Texas	12,000,000
Belcher & Son,	Bluefield, W. Va.	12,000,000
Nacogdoches Lbr. Co.,	Nacogdoches, Texas	12,000,000
Bennett & Harper Lbr. Co.,	Piedmont, Ala.	12,000,000
W. T. Vick Lumber Co.,	Hamilton, Ala.	11,878,555
St. Regis Paper Co.,	Fargo, Ga.	11,825,323
Smithville Lumber Co.,	Smithville, N. C.	11,803,000
Seagrove Lumber Co.,	Seagrove, N. C.	11,417,695
Williams Lumber Co.,	Cleveland, Texas	11,324,485
Price Paschal Lumber Co.,	Brandon, Miss.	11,166,198
Marion Lumber Co.,	Marion, S. C.	11,000,000
Dennison-Adams Lumber Co.,	Macon, Ga.	10,976,000
Dargan Lumber Mfg. Co.,	Conway, S. C.	10,643,000
Cherry River B'm & L. Co.,	Richwood, W. Va.	10,612,375
H. D. Foote Lumber Co.,	Alexandria, La.	10,606,000
Bellhaven Lumber Ind.,	Bellhaven, N. C.	10,600,000
Jacobs Lumber Co.,	Americus, Ga.	10,540,000
Ellijay Lumber Co.,	Blue Ridge, Ga.	10,500,000
Commonwealth Lumber Co.,	Murphy, N. C.	10,479,627
Swift-Hunter Lumber Co.,	Atmore, Ala.	10,402,725
Boettcher Lumber Co.,	Huntsville, Texas	10,283,000

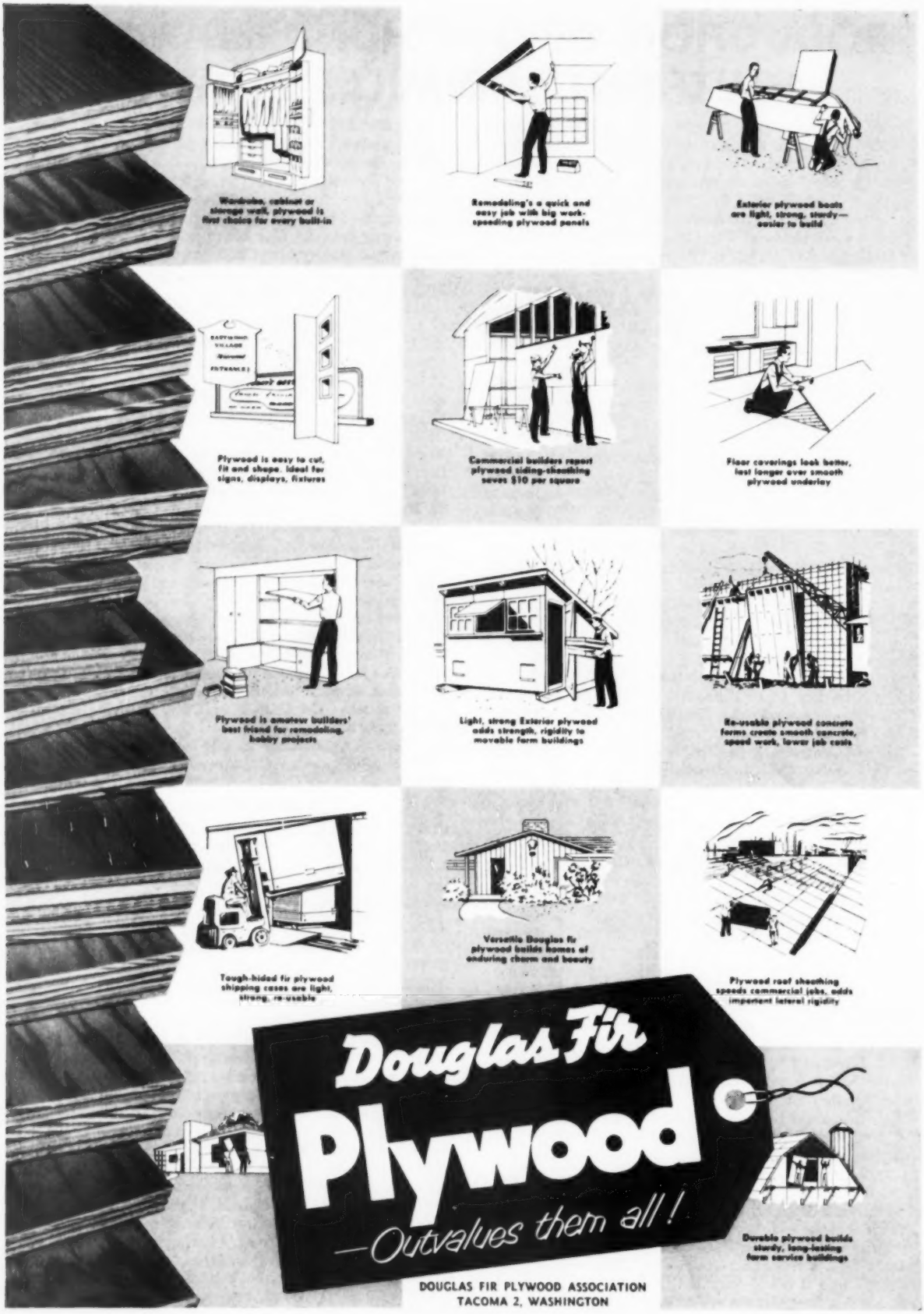
EASTERN CANADA

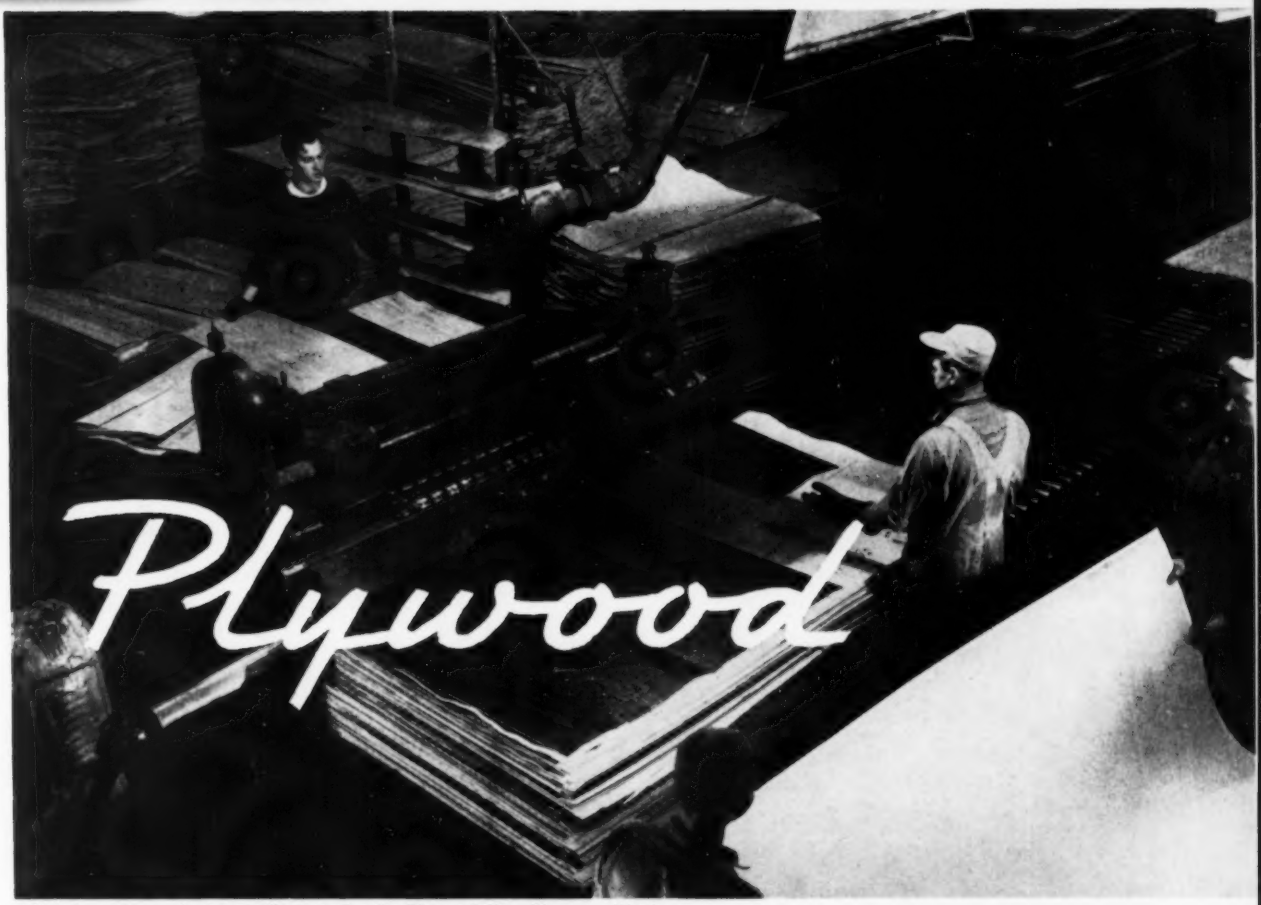
Price Bros. & Co., Ltd.,	Quebec, Canada	47,633,507
The Pas Lumber Co.,	The Pas, Man.	32,550,000
J. J. McFadden Lbr. Co.,	Blind River, Ont.	29,442,000
George Gordon & Co., Ltd.,	Cache Bay, Ont.	16,950,380
Great Lakes Lbr. & Shlp Co.,	Ft. Williams, Ont.	10,539,129

NORTHEAST AND LAKE STATES

D. B. Frampton & Co.,	Columbus, Ohio	90,000,000
Atlantic Lumber Corp.,	Boston, Mass.	45,000,000
Ford Motor Co.,	L'Anse, Mich.	22,989,111
Connor Land & Lumber Co.,	Laona, Wis.	22,935,150
Menominee Indian Mills,	Neopit, Wis.	21,840,000
William H. Champlin,	Rochester, N. H.	18,500,000
Cadallac Soo Lbr. Co.,	Ste. St. Marie, Mich.	17,647,767
Homestake Mining Co.,	Spearfish, S. D.	16,900,000
Abbott-Fox Lbr. Co.,	Iron Mountain, Mich.	15,371,200
Vulcan Corporation,	Donken, Mich.	12,400,000
Ahonen Lumber Co.,	Ironwood, Mich.	11,655,427
William Bonifas Lumber Co.,	Neenah, Wis.	11,000,000
Tigerton Lumber Co.,	Tigerton, Wis.	10,525,000
Northern Lumber Co.,	Poland, N. Y.	10,000,000
Goodman Lumber Co.,	Goodman, Wis.	9,100,000
C. M. Christensen Company,	Phelps, Wis.	7,587,000
Grafton Lumber Co.,	Bethel, Me.	7,000,000
Cotton-Hanlon,	Odessa, N. Y.	6,927,734

(Continued on Page 173)


Wardrobe, cabinet or storage wall, plywood is first choice for every built-in
Remodeling's a quick and easy job with big work-speeding plywood panels
Exterior plywood boats are light, strong, sturdy—easier to build
Plywood is easy to cut, fit and shape. Ideal for signs, displays, fixtures
Commercial builders report plywood siding-sheathing saves $10 per square
Floor coverings look better, last longer over smooth plywood underlay
Plywood is amateur builders' best friend for remodeling, hobby projects
Light, strong Exterior plywood adds strength, rigidity to movable farm buildings
Re-usable plywood concrete forms create smooth concrete, speed work, lower job costs
Tough-hided fir plywood shipping cases are light, strong, re-usable
Versatile Douglas fir plywood builds homes of enduring charm and beauty
Plywood roof sheathing speeds commercial jobs, adds important lateral rigidity
Douglas Fir
Plywood
—Outvalues them all!
Durable plywood builds sturdy, long-lasting farm service buildings
DOUGLAS FIR PLYWOOD ASSOCIATION
TACOMA 2, WASHINGTON



Glue Spreader in Action at Georgia Pacific Plywood Co., Olympia, Wash.

RECORD YEAR IN PLYWOOD PRODUCTION FINDS EXTENDED MECHANIZATION, MORE SPECIALTIES

In reporting the state of the plywood industry in 1953 THE LUMBERMAN brings forth in this annual review personal statements by some of the outstanding industry spokesmen. These men have behind them huge production and marketing forces made up of hundreds of workers and stockholders with whom they are in constant touch. There seems to be a distinct consensus of opinion among these experts that plywood will have another great year in 1953; they all seem to agree on another point, that plywood does not sell itself, any more than lumber, steel or concrete sell themselves, and that a vigorous promotion program goes hand-in-glove with the industry's energetic production operations.

During 1952 many new plants began turning out plywood or veneer for the very first time; others changed owners or names but kept turning out the panels. (A complete list of all currently operating West Coast plywood and veneer plants, including those in various stages of completion, appears in these pages. A list of the member mills of the Southern Plywood Manufacturers Association also appears.) Production in West Coast softwood mills zoomed over the three billion square feet mark for the first time in history, a new record.

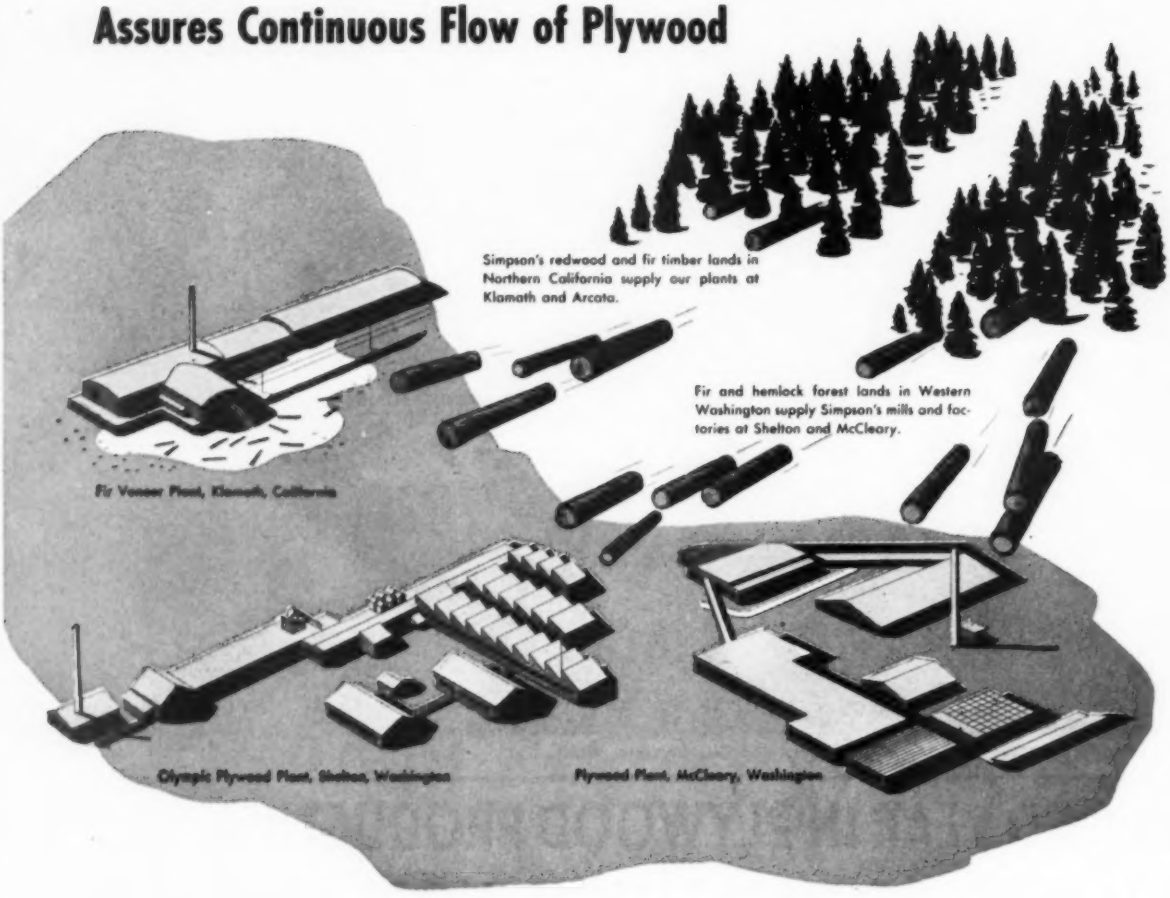
Hardwood Markets Threatened

Parties in the Southern plywood industry are concerned over the gradual evaporation of domestic markets caused by greatly expanded plywood production in various foreign countries, all of which are active in seeking export markets, including the U. S., themselves. The potential volume of exportable foreign-produced plywood, largely hardwood plywood, is mounting gradually. Southern plywood producers, confronted with this unexpected competition discovered their own production slipping rapidly. A drastic tariff reduction two years ago found foreign plywood produced at lower costs for labor and materials entering the U. S. at prices threatening the regular domestic market.

There are various trends in the plywood industry. Symptomatic of economic and production changes taking place, logs which cannot profitably be removed from the woods and processed into lumber are successfully harvested and converted to veneer. The president of a Western firm operating sawmill, planing mill and green veneer plant says his organization now harvests and utilizes logs for veneer which he cannot convert into lumber without sustaining economic loss. This especially applies to large defective logs.

One trend seems to be the installation of green veneer plants owned by large mills but at a considerable distance from the main plant. One phase of this trend is the development of a portable veneer plant,

Simpson's Abundant Supply of Raw Materials Assures Continuous Flow of Plywood


Simpson's redwood and fir timber lands in Northern California supply our plants at Klamath and Arcata.
Fir and hemlock forest lands in Western Washington supply Simpson's mills and factories at Shelton and McCleary.
Fir Veneer Plant, Klamath, California
Olympic Plywood Plant, Shelton, Washington
Plywood Plant, McCleary, Washington

THRIVING FORESTS farmed for continuous production provide the Simpson Logging Company with a long-time supply of logs for its mills and factories.

A modern new fir veneer plant at Klamath, California, processes fir logs harvested in Simpson's Northern California forests. Two plywood plants, one in McCleary and the other in Shelton, manufacture plywood from peeler logs harvested from forests on Washington State's famed Olympic Peninsula.

Simpson's forest practices are geared to a maximum schedule of tree production through fire and pest suppression, reforestation, conservation and the wise use of wood from all trees harvested.

COMPLETE LINE OF DOUGLAS FIR PLYWOOD

Simpson Douglas Fir Plywood is manufactured in the complete range of stock sizes, interior and exterior; is trademarked and carries DFPA grademarks for your protection.

FULL LINE OF FOREST PRODUCTS

In addition to Douglas fir plywood, Simpson produces and markets fir, hemlock, and redwood lumber, fir and hemlock doors, flush doors, insulating board products, acoustical materials, hardboard, paper and paper products.

SIMPSON LOGGING COMPANY

General Sales Offices: 1065 Stuart Building, Seattle 1, Washington. *Regional Offices:* Seattle, San Francisco, Los Angeles, New York, Chicago, Kansas City, Fargo, Shreveport. *Plants:* Shelton and McCleary, Washington; Klamath and Arcata, California; (Everett Pulp and Paper Co.), Everett, Washington.

such as was recently set up by the Humboldt Plywood Corp. in Northern California (described in this section).

Strive for Higher Standards

There is a constant effort on the part of the plywood producers to not only maintain their panels at high quality standards but to raise the standard of physical qualities to an even higher level. Even though last year saw production records broken, producers can look to keener competition for consumer markets in the future. Research and development laboratories are forever working on the problems of gluing, grading product betterment and increased number of uses.

Mechanization in the manufacture of plywood has not seen anything particularly new or startling in recent years. There have been some improvements and refinements by manufacturers in their regular line of plywood equipment, while some individual mills have applied their ingenuity and made innovations on existing machinery in their own plants.

Metal-Strapping Popular

Some recent mechanical developments are portrayed in this section. The automatic dryer feeder promises effect savings by reducing the manual handling of veneer. The electronic moisture indicator, which automatically rejects any panel of improper moisture passing through it, is a noteworthy development. Metalstrapping of plywood for shipment continues to be more or less standard, with the adhesive taping gaining somewhat in popularity.

By far the most apparent changes in plywood production and those which offer the greatest field for individual originality have occurred in the facing on plywood panels. Whereas special faces of hardwood, hardboard, plastic and brushed or striated veneer were at one time produced by a small segment of the Douglas fir plywood industry, today it is the exceptional mill which cannot supply a special item in addition to its regular interior and exterior grades.

Many Specialties Produced

For instance, ten Douglas Fir Plywood Association member mills turn out Plyron, the hardboard faced plywood and seven produce plastic-surfaced plywood. Over 20 mills in the Douglas fir area are turning out panels containing at least one species of hardwood, including birch, gum, maple, walnut, cottonwood, white oak, Philippine mahogany and African mahogany. Several mills have turned to sliced vertical-grain fir and cedar and rotary-cut knotty pine faces for specialty panels. Columbia Veneer Co. of Kalama, Wash., has placed its new "Kalabord" on the market. This is an interior panel with a hardboard face which has been furrowed with grooves of varying width. Resultant shadows formed by the remaining ridges give a pleasing appearance.

The various plywood panels such as M&M Wood Working Co.'s new redwood and Douglas fir "Shadowood," Georgia-Pacific Plywood Co.'s "Burly" and "Knotty Wedge-Wood," Associated Plywood Mills, Inc.'s "Sea Swirl" and Canadian Forest Products Ltd.'s "Etchwood" are beautiful and intriguing designs that increase the desirability and use of plywood.

TOTAL SOFTWOOD PLYWOOD*

(M square feet, 3/8" basis)

	1950	1951	% of total ('51)
California	291,669	364,558	12%
Oregon	1,045,691	1,202,119	40%
Washington	1,338,220	1,428,096	48%
Total	2,675,580	2,994,773	100%

*U.S. Census Bureau

CONSUMPTION OF LOGS FOR MANUFACTURE OF SOFTWOOD PLYWOOD*

(Approximately 95% of the Volumes are Douglas fir)

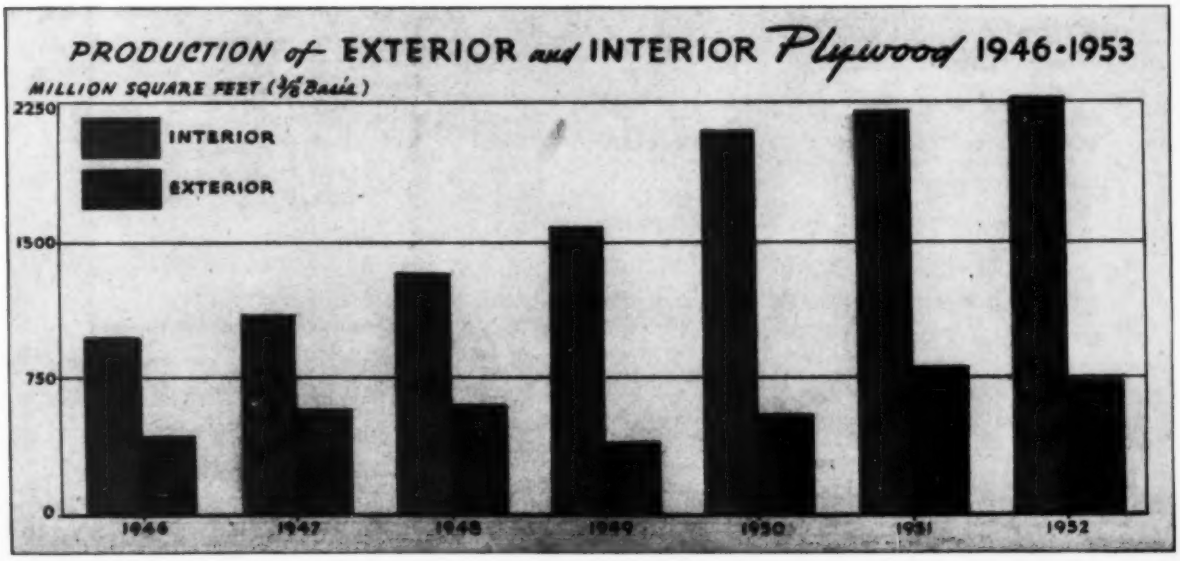
	M feet log scale	
	1950	1951
California	129,325	155,421
Oregon	466,754	500,664
Washington	561,123	575,558
Total	1,157,202	1,231,643

*U.S. Census Bureau

Douglas Fir Plywood Production in U.S.
(square feet, 3/8" basis)

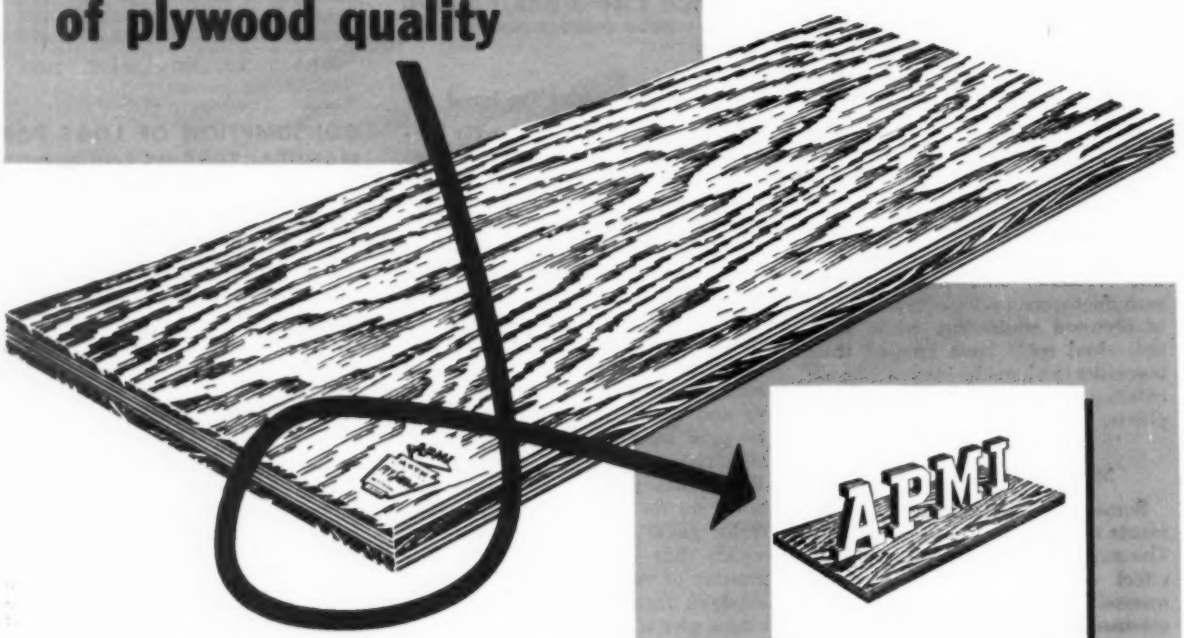
1924	125,000,000	1943	1,430,000,000
1925	153,000,000	1944	1,440,000,000
1930	305,000,000	1945	1,200,000,000
1935	480,000,000	1946	1,395,000,000
1936	700,000,000	1947	1,630,000,000
1937	725,000,000	1948	1,871,000,000
1938	650,000,000	1949	1,899,000,000
1939	950,000,000	1950	2,554,000,000*
1940	1,200,000,000	1951	2,867,000,000*
1941	1,620,000,000	1952	3,000,000,000*
1942	1,782,000,000		

*Figs. from Douglas Fir Plywood Association.



TRADEMARKED

as well as grademarked ...your double guarantee of plywood quality



The combination of APMI trademark and DFPA grademark is your assurance that regardless of where you buy Associated plywood, you get the guaranteed products of a pioneer mill in the industry.

There is a type, size and grade of APMI plywood (exterior and interior) for every building need:

Douglas fir plywood; *Sea Swirl* decorative plywood; Philippine mahogany faced plywood; birch faced plywood; vertical grain fir plywood.

APMI products are sold from centrally located sales warehouses, sold by experienced plywood men. Your inquiries are invited.

BRANCH SALES WAREHOUSES:

4268 Utah St., St. Louis, Mo.
4814 Bengal St., Dallas, Texas
4003 Coyle St., Houston, Texas
1026 Jay St., Charlotte, N. C.
111 Welborn St., Greenville, S. C.
925 Toland St., San Francisco, Cal.
Eugene, Oregon
Willamina, Oregon

SALES OFFICES:

31 State Street, Boston, Mass.
595 E. Colorado St., Pasadena, Cal.

ASSOCIATED

PLYWOOD MILLS, INC.

General Offices: Eugene, Oregon

PLYWOOD MILLS AT EUGENE AND WILLAMINA, OREGON

PRODUCTION OF HARDWOOD PLYWOOD*

BY TYPE—1951 (Plywood, M sq. ft. surface meas.)

Technical type	10,256
Type I, waterproof	29,635
Type II, moisture resistant	932,717
Type III, dry bond	127,944
Container & packing type	366,696
Total, All Types	1,467,248†

*U.S. Census Bureau
†Excludes 54,305 M sq. ft. ⅜" basis of hardwood plywood produced in W. Coast softwood plywood mills.

PRODUCTION OF HARDWOOD VENEER*

BY SPECIES—(Veneer, M sq. ft. surface meas.)

	Total, 1951
Birch (imp. and dom.)	970,579
Gum	2,561,158
Mahogany (Khaya and Swietenia)	436,536
Maple	626,629
Oak	445,372
Poplar	988,669
Walnut	236,591
Other dom. woods	919,155
Other imp. woods	201,402
Total All Species	5,386,418

*U.S. Census Bureau

★ ★ ★ Production of Southern Hardwood Plywood for 1952 has been estimated at 325,000,000 square feet on a ¼-inch basis.

★★★ The ShastaPlywood Corp., Anderson, Calif., is now manufacturing "Surfwood" a panel made from white fir. After the panels are made up they are both brushed and abraided to make a most pleasing effect.

CURRENT MANUFACTURERS OF PLASTIC SURFACED PLYWOOD

(List furnished by Douglas Fir Plywood Association, Tacoma, Wash.)

Anacortes Veneer, Inc., Anacortes, Washington, "Armoron"

Georgia-Pacific Plywood Company, P. O. Box 909, Augusta, Georgia, "GPX."

Harbor Plywood Corporation, Box 940, Aberdeen, Washington, "Harborite."

*Menasha Plywood Company, P. O. Box 832, Northbend, Oregon, "MENA" series.

St. Paul & Tacoma Lumber Co., 1220 St. Paul, Tacoma 2, Washington, "Plyaloy" (med. density), "Plyglaze" (high density).

*Walton Plywood Company, Inc., P. O. Box 1120, Everett, Washingon, "Ever-Use", "Ever-Form."

West Coast Plywood Company, P. O. Box 1180, Aberdeen, Washington, "Welchboard."

**New in 1952.*

PRODUCTION OF HARDWOOD VENEER*

BY REGION—Veneer, M sq. ft. surface meas.

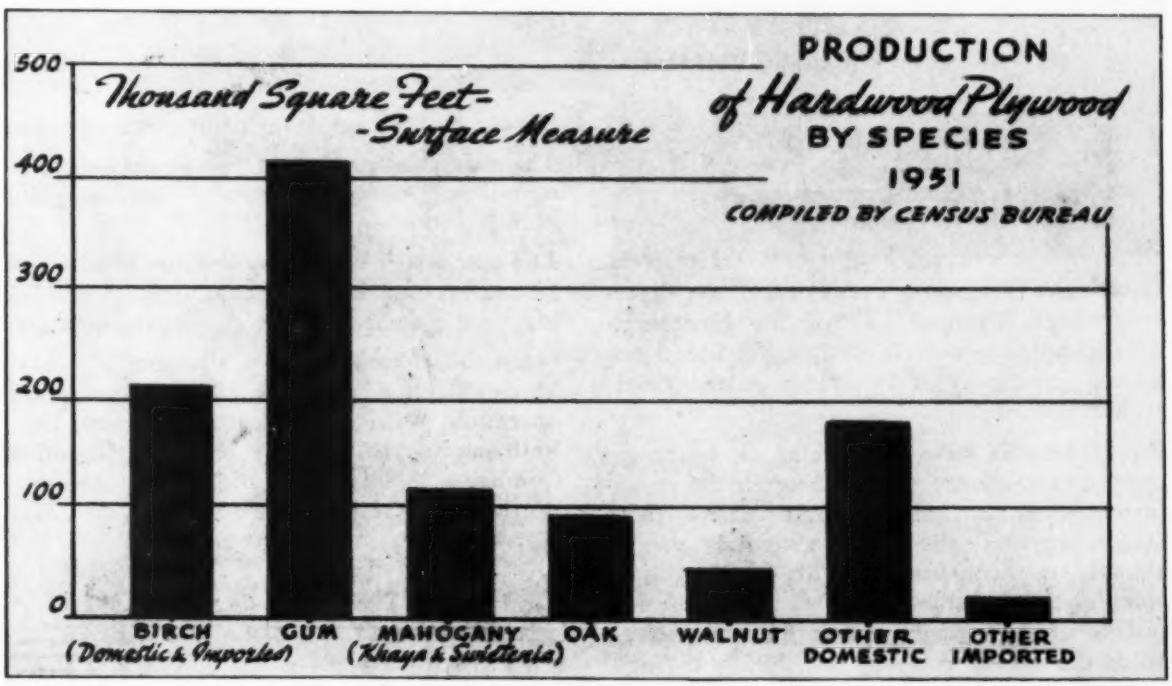
	Total, 1951 All Types
New England States	1,015,958
Middle Atlantic States	not given
Lake States	1,477,253
Central & Prairie States	1,350,145
Southern States	6,723,937
Pac. & Rocky Mt. States	not given
Total All Regions	11,191,523

*U.S. Census Bureau

West Coast's Newest Plywood, Veneer Plants

1952's additions to the growing list of plywood producers on the West Coast include some brand-new mills as well as some which formerly were in the veneer business only: BRITISH COLUMBIA—B. C. Forest Products, Ltd. (Victoria Plywood Division), Victoria. WASHINGTON—Elma Plywood Corp., Elma. OREGON—Brookings Plywood Corp., Brookings; Coquille Plywood, Inc., Coquille; Gardiner Lumber Co., (Long-Bell Lumber Co.), Gardiner; Georgia-Pacific Plywood Co., Toledo; Medford Veneer & Plywood Corp., White City (Medford); Pacific Plywood Co., Dillard; Weyerhaeuser Timber Co., Springfield. IDAHO—Potlatch Forests, Inc., Lewiston. CALIFORNIA—Arcata Plywood Corp., Arcata; California International Veneer & Plywood Corp., Los Angeles; Pacific Plywoods, Inc., Sonoma; Paragon Plywood Corp., Crescent City; Western Pacific Plywood Corp., Los Angeles.

Six new veneer plants swung into operation in 1952, as follows: WASHINGTON—Skagit Veneer & Lumber Corp., Concrete. OREGON—Lane Veneer Co., Eugene; Linnton Plywood Association, Portland (in January, 1953, extended production to plywood); Multnomah Plywood Corp., Glendale; Rogue Veneer Co., Grants Pass. CALIFORNIA—Simpson Logging Co., Klamath.



DOLLAR for DOLLAR *You Can't Beat the*

New PROCTOR *Type D-4*

VENEER DRYER

COMPLETELY NEW—BASED ON PROVEN PRINCIPLES . . .

CAPACITY TO SUIT INDIVIDUAL REQUIREMENTS . . . .

VERSATILE OPERATION . . . . . .

BACKED BY PROCTOR GUARANTEE . . . . . .

Here is the best buy in a plywood veneer dryer ever offered. A product of Proctor engineering, it is completely new in design, yet based on proven principles of Proctor standard cross air circulation.

Briefly here is how it operates. A series of conveyors carry the veneer through the dryer in four runs simultaneously. An entirely new design provides conveyors of extremely sturdy, but very open construction. This permits maximum circulation of heated air to reach the surface of the veneer—and at the same time, holds the veneer perfectly flat during drying. Veneer may be fed either endo or cross-grain.

The unit construction of this equipment permits fitting each machine to individual plant requirements.

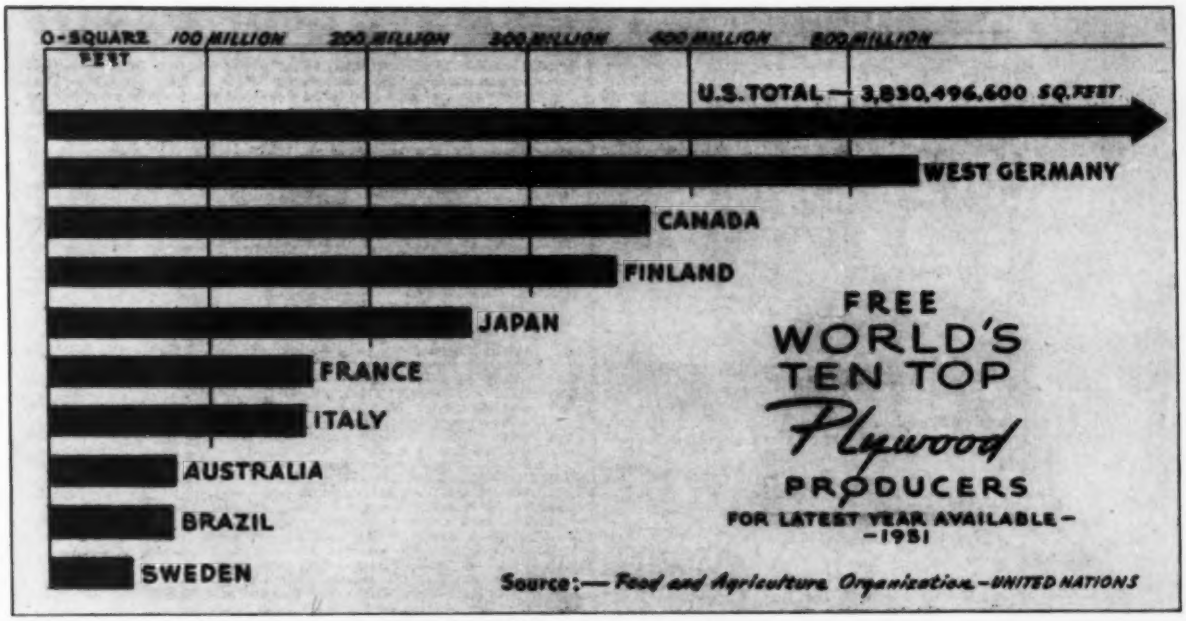
The new D-4 is backed by Proctor & Schwartz guarantee—and their long experience in designing drying equipment for the veneer industry.

Learn today how this new Proctor Type D-4 Veneer Dryer can profitably fit into your plant operation. Write to Proctor & Schwartz, Inc., Philadelphia 20, Pa.—or to E. V. Prentice Company, 2303 North Randolph Avenue, Portland 12, Oregon—the Proctor West Coast representative.

PROCTOR & SCHWARTZ • INC •

666 TABOR ROAD

PHILADELPHIA 20 • PENNA.



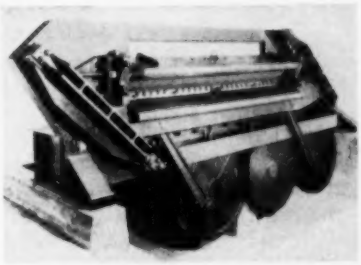
Plywood Industry Birth 49 Years Ago At Old Portland Mfg. Co. Veneer Plant

A "baby" born 49 years ago in Portland, Ore., has successfully passed every stage of its development, until today it enjoys the full pleasures of adulthood. That so-called "baby" was the plywood industry in its first stage of manufacture—an experiment in pressing and gluing veneers by the Portland Manufacturing Company. This firm was established in 1900 by G. H. Carlson as a veneer package plant; here fir and cottonwood were peeled and rolled up into coffee and spice drums or laced into basketware. This birth of the industry was in 1904, and the same plant of Portland Manufacturing Co. is new leased to the M & M Wood Working Co. and operated as the Portland Plylock Division.

The first plywood veneers were bonded with ordinary animal glue, placed in a wooden press tightened with hand screws and left until set. The plywood was then suspended from a rack in an ordinary kiln for drying.

Around 100 of these first panels were exhibited in the Forestry Building in the Lewis & Clark Centennial Exposition in Portland in 1905. Recently the same panels, which were removed from the building during its refurbishment and returned to the Plylock plant for refinishing, were put on display once again.

Some of the notable dates since that humble beginning are 1906, with the development of a glue spreader when Peter Autzen was president of Portland Manufacturing Co.; 1915, installation of the first mechanical drier; and 1927, when the first water-resistant glues were developed. Progress since 1927 has been steady, and expansion and modern mechanization in the post-World War II era has been phenomenal.

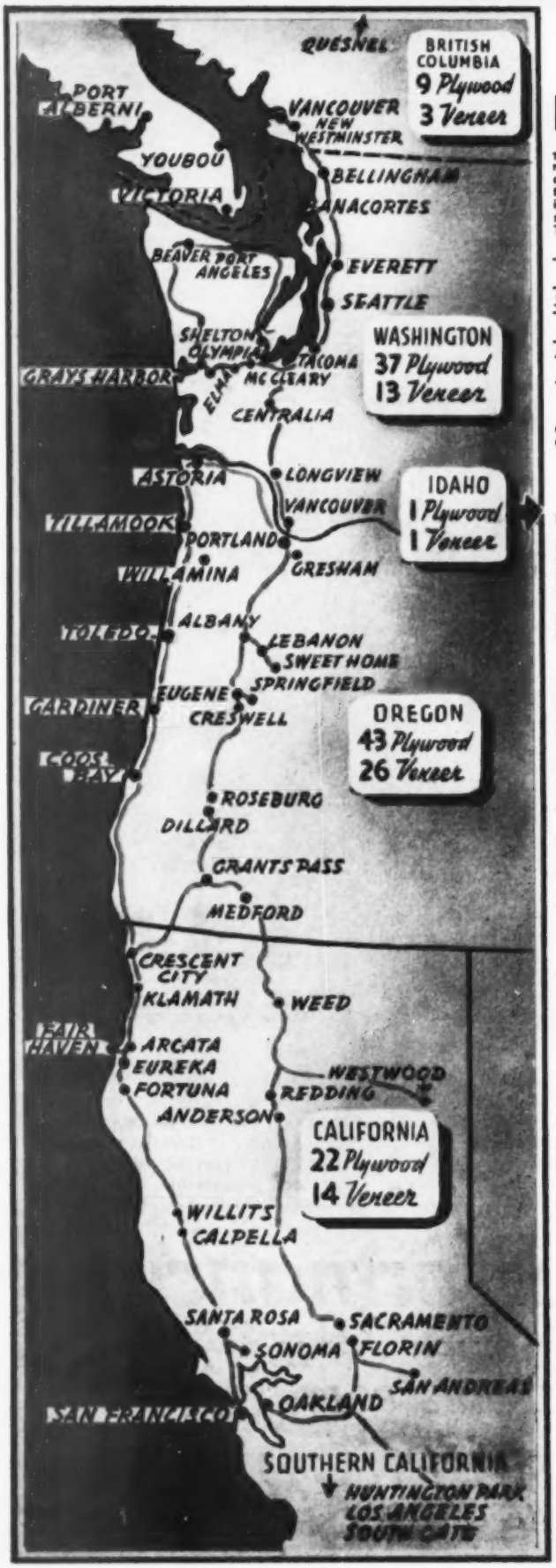


SOMETHING NEW IN THE EQUIPMENT LINE is the above hydraulically controlled veneer slicer, designed to cut face veneer for the manufacture of vertical-grain plywood panels. The size of maximum cut slice is 101" length and 14" width; 60 cuts per minute is standard speed, with a high of 72. Manufacturer is Premier Gear and Machine Works; designer is Charles F. Bamford, Portland, Ore.

10 Years' Performance...

CONSISTENT PRODUCT QUALITY
CONSISTENT SALES POLICY

PUGET SOUND PLYWOOD, Inc.
TACOMA 2, WASHINGTON



LOCATION, NAME & CHIEF

★ ALL MAJOR PLYWOOD AND VENEER PRODUCING cities and communities are shown on the map at left. Most of these production sites are located on or near major U. S. highways, which are represented by thin gray lines. Some smaller towns do not appear. A complete list including all addresses, personnel, equipment, products and production statistics for the following plants may be found in the 1953 editions of THE LUMBERMAN'S Handbook & Directory of the Western Forest Industries and of the Southern Forest Industries.

ALASKA

JUNEAU—Alaska Plywood Corp., plywood.

CALIFORNIA

ANDERSON—Anderson Veneer Co., veneer.
Shasta Plywood, Inc., plywood.
ARCATA—Arcata Plywood Corp., veneer.
California Barrel Co., Inc., veneer.
Durable Plywood Co., core stock.
Humboldt Plywood Corp., plywood.
CALPELLA—Durable Plywood Co., plywood.
CRESCENT CITY—Del Norte Veneer Co., veneer.
Lund Plywood & Mfg. Co., veneer.
Pacific Veneer, Inc., veneer.
Paragon Plywood Corp., plywood.
Standard Veneer & Timber Co., veneer.
West Coast Veneer Co., veneer.
EUREKA—Humboldt Veneer Co., veneer.
M&M Wood Working Co., plywood.
FAIRHAVEN—(near Arcata)—Mutual plywood Corp., plywood.
FLORIN—Pine Veneer Cover Co., veneer.
FORTUNA—Universal Forest Products, plywood.
HUNTINGTON PARK—Karpen Plywood Co., plywood.
KLAMATH—Crescent Plywood Co., plywood.
Simpson Logging Co., veneer.
LEGGETT (Mendocino Co.)—The Pacific Coast Co., veneer.
LOS ANGELES—Angelus Furniture Mfg. Co., plywood.
International Veneer & Plywood Corp., plywood.
Western Pacific Plywood Corp., plywood.
Wood & Cies Mfg. Co., plywood.
OAKLAND—Albrite Mfg. Co., plywood.
REDDING—Redding Veneer & Box Co., Inc., veneer.
SAN ANDREAS—Calaveras Forest Products Corp., plywood.
SANTA ROSA—Santa Rosa Plywood, Inc., plywood.
SONOMA—California Pacific Plywoods, Inc., plywood.
Sonoma Plywood Co., plywood.
SOUTHGATE—General Veneer Mfg. Co., plywood.
WEED—Long-Bell Lumber Co., plywood.
WESTWOOD—Fruit Growers Supply Co., plywood.
WILLITS—Industrial Plywood Corp., plywood.

IDAHO

LEWISTON—Potlatch Forests, Inc., plywood (pine).
WEISER—Produce Containers, Inc., veneer.

OREGON

ALBANY—Albany Veneer, Inc., core stock.
Edwards Bros. Const. Co., veneer.
Linn Plywood Corp., plywood.
M&M Wood Working Co., plywood.
ASTORIA—Astoria plywood Co., plywood.
Uptegrove Lumber Co., plywood.
AUMSVILLE—Willamette Builders Supply Co., plywood.
BANDON—Bandon Veneer Box Co., veneer.
BROOKINGS—Brookings Plywood Corp., plywood.
COALCA (P. O. Oregon City)—Doernbecker Mfg. Co., veneer.
COOS BAY—Evans Products Co., plywood.
Spruce Veneer Products Co., veneer.
COQUILLE—Coos Bay Lumber Co., plywood.
Coquille Plywood, Inc., plywood.
COTTAGE GROVE—W. A. Woodard Lumber Co., plywood, under construction.
CRESWELL—Holt Lumber Co., veneer.
Milwaukie Plywood & Door Coop., plywood.
CULP CREEK—Cottage Grove Plywood Co., veneer.
CURTIN—Forrest Veneer Co., veneer.
DILLARD—Andrus Lumber Co., veneer.
Dillard Veneer Co., core stock.
Pacific Plywood Co., plywood.
Roseburg Lumber Co., plywood.
ELKTON—Central Oregon Plywood, Ore., Ltd., veneer.
EUGENE—Associated Plywood Co., plywood.
Campbell & McLean, Inc., plywood.
Giustina Veneer Co., veneer.
Lane Veneer Co., plywood.
Snellstrom Lumber Co., plywood.
GARDINER—Gardiner Lumber Co., plywood.
GARIBALDI—Oregon-Washington Plywood Co., plywood.
GOLD BEACH—Campbell & McLean, Inc., veneer.
GRANTS PASS—Southern Oregon Plywood, Inc., plywood.
GRESHAM—Olympic Mfg. Co., veneer.
Rotary Cut Box Co., veneer.
IDANHA—M&M Wood Working Co., veneer.
JUNCTION CITY—Valley Plywood Co., plywood.
KLAMATH FALLS—Kalpine Plywood Co., plywood.
LEBANON—Cascades Plywood Corp., plywood.
Western Veneer Co., plywood.
LYONS—M&M Wood Working Co., veneer.
MAPLETON—United States Plywood Corp., plywood.
MEDFORD—Veneer Products Co., plywood.
MILWAUKIE—Milwaukie Box & Door Co., veneer.
Milwaukie Plywood & Door Coop., plywood.
MYRTLE CREEK—Umpqua Plywood Corp., plywood.
NORTH BEND—Menasha Plywood Corp., plywood.
NORWAY—Myrtle Point Veneer Co., veneer.
OAKLAND—The Martin Bros. Box Co., plywood.
ODELL—Hood River Box & Veneer Co., veneer.

PRODUCT OF WESTERN AND MAJOR SOUTHERN PLANTS

PORTLAND—Coast Veneer Co., veneer.
B. P. John Furniture Corp., plywood.
Linnton Plywood Association, veneer. (Plywood in '53)
M&M Wood Working Co., plywood.
Multnomah Plywood Corp., plywood.
Western Cooperage, Inc., veneer.
PORT ORFORD — Western States Plywood Corp., plywood.
ROSEBURG—Perkins Veneer Co., veneer.
Umpqua Plywood Corp., plywood.
SPRINGFIELD — Springfield Plywood Corp., plywood.
Weyerhaeuser Timber Co., plywood.
SUTHERLIN—Sutherlin Plywood Association, plywood.
SWEET HOME—Oregon Plywood Corp., plywood.
TILLAMOOK—Aberdeen Plywood Corp., veneer.
TOLEDO—Georgia-Pacific Plywood Co., sheathing, veneer.
WESTFIR—Edward Hines Lumber Co., plywood.
WHITE CITY (near Medford)—Medford Veneer & Plywood Corp., plywood.
WILLAMINA—Associated Plywood Mills, Inc., plywood.
WINCHESTER—Evans Products Co., plywood.

WASHINGTON

ABERDEEN—Aberdeen Plywood Corp., plywood.
Harbor Plywood Corp., plywood.
West Coast Plywood Co., plywood.
ANACORTES—Anacortes Veneer, Inc., plywood.
ARLINGTON—Arlington Lumber & Plywood Corp., sheathing.
BEAVER—National Plywood Co. of Washington, plywood.
BELLINGHAM—Bellingham Plywood Co., plywood.
Mt. Baker Plywood, Inc., plywood.
Pacific Veneer & Plywood Corp., plywood.
CENTRALIA—Centralia Plywood, Inc., plywood.
CONCRETE—Skagit Veneer & Lumber Corp., veneer.
DARRINGTON — Three Rivers Plywood & Timber Co., veneer.
ELMA—Elma Plywood Corp., sheathing.
Gordon-Ladley Plywood Products Co., veneer.
EVERETT—Everett Plywood & Door Corp., plywood.
Walton Plywood Co., plywood.
HOQUIAM—Grays Harbor Veneer Corp., veneer.
Woodlawn Plywood Co., plywood.
KALAMA—Columbia Veneer Co., plywood.
KENMORE—Farwest Plywood Co., veneer.
KOSMOS—U. S. Plywood Corp., veneer.
LACEY—Lacey Plywood Co., Inc., plywood.
LEAVENWORTH—Construction Products Industries, veneer.
LONGVIEW—M&M Wood Working Co., plywood.
Weyerhaeuser Timber Co., plywood.
MC CLEARY—Simpson Logging Co., plywood.
OLYMPIA—Gordon-Ladley Plywood Products Co., plywood.
Hardel Plywood Co., plywood.
Hy-Grade Hardwood Veneers, Inc., plywood.
St. Paul & Tacoma Lumber Co., plywood.
Washington Veneer Corp., (Georgia-Pacific), plywood.
PORT ANGELES—Peninsula Plywood Corp., plywood.
PUYALLUP—Brew Manufacturing Co., veneer.
Hendricks Veneer Co., veneer.
Spruce Veneer Package Corp., veneer.
RANDLE—Randle Veneer, Inc., veneer.
RAYMOND—Harbor Veneer Plant of Pacific States Box & Basket Co., veneer.
RENTON—Seattle Plywood Corp., veneer.
SEATTLE—Elliott Bay Mill Co., plywood.
U. S. Plywood Corp., plywood.
SHELTON—Simpson Logging Co., plywood.
STEVENSON—Stevenson Plywood Corp., plywood.
TACOMA—Buffelen Mfg. Co., plywood.
Engineered Plywood Prod. Co., Inc., plywood.
Donald W. Lyle, Inc., plywood.
North Pacific Plywood, Inc., plywood.
Northwest Door Co., plywood.
Puget Sound Plywood, Inc., plywood.
Rainier Plywood Co., plywood.
VANCOUVER—Vancouver Plywood Co., plywood.

BRITISH COLUMBIA

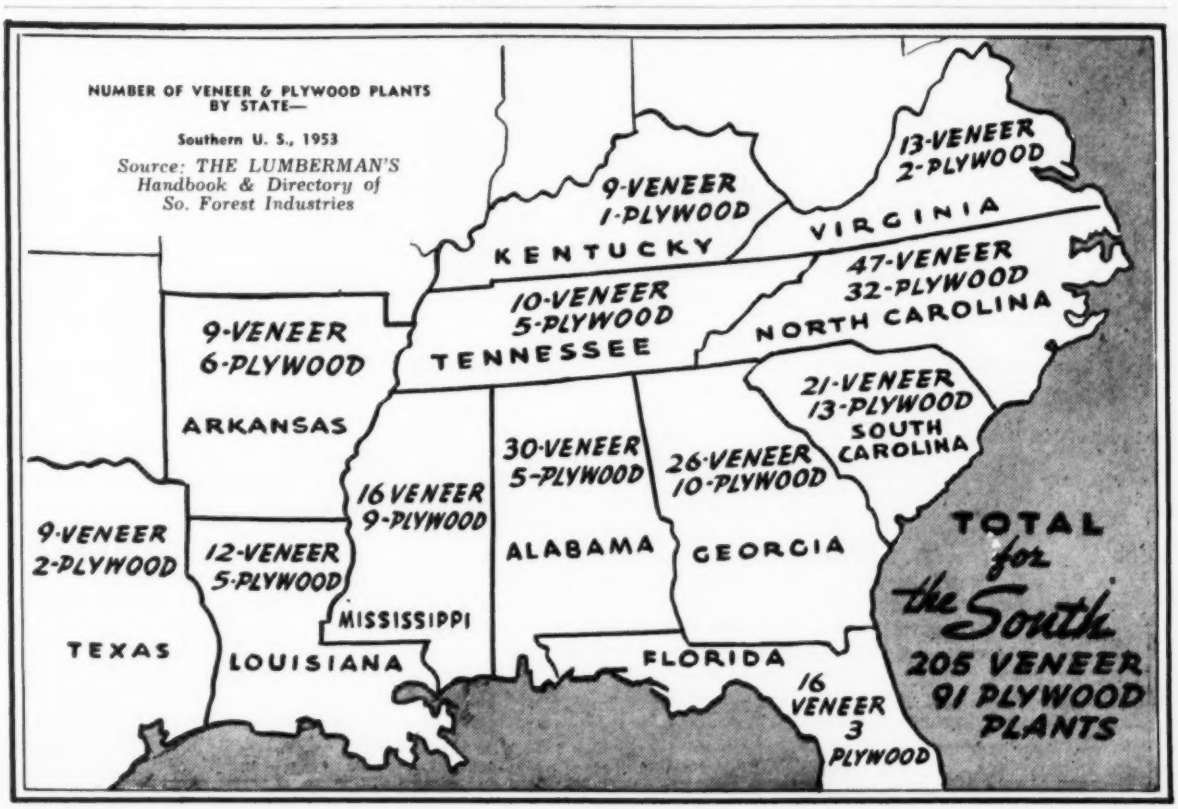
ESQUIMALT—Sooke Harbor Lumber Co., veneer.
FRASER MILLS—Canadian Western Lumber Co., plywood.
KELOWNA—S. M. Simpson, Ltd., veneer.
NEW WESTMINSTER—Pacific Veneer Division of Canadian Forest Products, Ltd., plywood.
PORT ALBERNI—MacMillan & Bloedel, Ltd., Alberni Div., plywood.
QUESNEL—Western Plywood (Cariboo) Ltd., plywood.
VANCOUVER—Beaty Laminated, plywood.
MacMillan & Bloedel, Ltd., Vancouver Div., plywood.
J. R. Murray, Ltd., plywood.
Western Plywood Co., Ltd., plywood.
VICTORIA—B. C. Forest Products, Ltd., Victoria Div., plywood.
YOUBOU—B. C. Forest Products, Ltd., Cowichan Div., veneer.

SOUTHERN U. S.

(Note: The following Southern mills are members of the Southern Plywood Manufacturers Association and each are important units within the industry. For reasons of simplicity the remaining 200-odd veneer and small plywood makers are not listed here; they can be found in THE LUMBERMAN's Handbook & Directory of the Southern Forest Industries, 1953.—Editor.)

ALABAMA—Thompson & Swaim Plywood Co., Tuscaloosa.
ARKANSAS—McKnight Veneers, Inc., Helena.
FLORIDA—Southern Plywoods, Inc., Greenville
GEORGIA—Georgia Plywood Corp., Dublin.
Georgia-Pacific Plywood Co., Savannah.
Primho Veneer Co., Valdosta.
Valdosta Plywoods, Inc., Valdosta.
Waynesboro Veneer Co., Waynesboro.
MISSISSIPPI—Perry County Plywood Corp., Beaumont.
Fernwood Industries, Fernwood.
T. C. Fuller Plywood Co., Laurel.
Pascagoula Veneer Co., Pascagoula.
Picayune Veneer & Plywood Co., Picayune.
NORTH CAROLINA — Calypso Veneer Co., Calypso.

(Continued on Page 121)



— THE PLYWOOD OUTLOOK FOR 1953 —

Regional Reports by Industry Spokesmen

"- - degree of qualified optimism - -"

By
B. V. HANCOCK
President, Douglas Fir Plywood Association
and
Executive Vice President, Cascades Plywood Corp.

Some degree of qualified optimism is justified in assessing the market picture for Douglas fir plywood in 1953. It must, of course, be tempered with a realistic appraisal of various factors affecting plywood sales such as increased productive capacity, the business outlook, activity in plywood markets and competition from other products.

During the past year, the capacity of the industry has substantially increased and today it stands at about 3.5 billion square feet figured on a 3-shift, 5-day basis. Production around the last of 1952 was on an annual basis of about 3 billion square feet. The manufacturers look forward to a total output of slightly more than that this year.

At the turn of 1953, sales very definitely reflected the sharp upturn in the market following price break which occurred the latter part of October and the early part of November, 1952. They have been about 25 per cent above weekly production and despite the January increase in price, weekly new orders are strong and give every indication of remaining that way through the first months of 1953. Business leaders, although they expect a general leveling, do not look for any major declines. In plywood markets particularly the outlook is good.

Plywood Lowers Costs

A heavy proportion of the industry's output goes into the broad construction market in homes, and for concrete forms in heavy construction including bridges, dams and highway structures. Experts in the housing field are virtually unanimous in predicting another million housing starts this year. Dropping of credit curbs and Regulation X is expected to stimulate new building.

There is ample evidence that end-use values for plywood in housing are sufficient to justify the expectation that the industry can capture a larger share of this market than ever before. A big Detroit builder reports plywood construction cuts labor on his project homes by 17 manhours per house. Another builder in St. Louis calculated that plywood saves him $87 per house.

With labor costs relatively inflexible and increasing pressure for better quality homes and lower home prices, plywood enjoys a competitive position difficult for other materials to match. Bearing in mind end-use

B. V. HANCOCK

values for plywood in both structural and finish applications, the industry should be able to increase its sales in the residential building field despite an anticipated decline in dollar volume of $2.3 billion.

Concrete-Form Use Wide

Commercial construction presents an even brighter picture. Relaxation of credit and materials controls is expected to increase this form of construction in 1953. Other civilian non-farm construction in 1953 is expected to be about 8.2 billion, about the same as in 1952. Most of this will be in bridge and highway construction where plywood is used widely for concrete forms.

Railroad car production dropped in 1952 as a result of the steel strike but it is expected to rebound this year. Plywood has a strong position in the truck building field. Small boat construction where plywood is a primary raw material continues a sensational expansion sparked by increasing popularity of packaged boat kits.

The plywood industry is, of course, feeling the effects of competition from other building materials but plywood still does more jobs better than any other single building material. Although hardwood plywood imports have increased, only a small proportion of industry output goes to jobs where natural finished paneling is specified and that is the chief area of competition.

Product Development Studied

Meanwhile, individual manufacturers are increasing their emphasis on specialty products such as plastic surfaced plywood, brushed plywood, hardboard surfaced plywood and other products. The industry, through its trade association, is studying the development of other new products which in themselves serve to build sales of the standard grades of fir plywood which are the industry's bread and butter.

Similarly, the industry is re-appraising its grades with a view to adjusting its standards to meet exact use needs. Joined with continuing product research looking toward development of basic technical data justifying plywood's use in new structural applications, these activities point the way to continuing strong demand for plywood in all markets.

★

Electronic Gluer Installed

A Mann-Russell electronic veneer edge gluer was installed at the Mutual Plywood Corp. in 1952 and another was scheduled to be installed at the Arcata Plywood Corp., Arcata, Calif. At Mutual the machine is used to edge glue random width veneer strips. Formerly the random widths of veneer had to be graded out to make 36, 48 or 60-inch widths. These are now collected and edge glued and sent through a Merritt-Solem clipper where they are clipped to any desired width.

A-M ADHESIVE PRODUCTS

***Protein Adhesives:** Casein, soya and soya blend glues for the plywood and woodworking industries.

Synthetic Resin Adhesives: Phenol-formaldehyde, urea-formaldehyde, phenol-resorcinol-formaldehyde and resorcinol-formaldehyde resins for plywood, woodworking and laminating industries.

Special Resins: Phenolic resins for making laminated products, precipitating resins for hardboard manufacture, impregnating resins for overlay production, resins for wet-strength paper manufacture and special resins for complete utilization of forest products.

Sealers: Quality panel sealer combining both water repellency and paintability for plywood and woodworking industries

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The exterior panels that are always smooth . . .

PICTURE STORY

The home pictured above, on beautiful Gravelly Lake near Tacoma, Washington, demonstrates how architects are turning to Welchboard for interiors and exteriors alike. Lap-siding, gables, and porch-soffits were built with Welchboard. On the interior, ceilings are Welchboard's convenient, large, easy-to-use panels.

WELCHBOARD is the exclusive, surfaced plywood that is equally excellent for *interior* and *exterior* construction. Panels and siding are both factory-primed, require but two coats of paint for excellent finish. Welchboard assures you of minimum waste, as there is no end-splitting. Wider weather exposures for exterior wall construction (up to 15") save on application cost. And Welchboard is available in thicknesses of 3/8", 1/2", and 3/4" to give you maximum service in the strength required for each purpose.

For information on uses of Welchboard in wainscot work for interiors of schools, churches, and lodges . . . for boat decking, bulkheading, dock and runway decking, commercial and residential building, send for our free booklet, "The New Welchboard."

WEST COAST PLYWOOD COMPANY

Box 1180, Aberdeen, Washington

Manufacturers of "Tru-Bilt" Exterior-Type and Interior-Type Douglas Fir Plywood

Output Doubled; Sales Potential Unrealized

"Major challenge--"

By
JAMES L. BUCKLEY
Vice President for Sales, Georgia-Pacific Plywood Co.

During the past seven year, the productive capacity of the west coast fir plywood industry has more than doubled. Yet, over-shadowing this spectacular expansion is the indisputable fact that the full potential for plywood sales has not yet been approached.

However, actual realization of the vast potential market for plywood presents a major challenge. This will require a degree of business statesmanship beyond that which we forest products manufacturers have previously exhibited. It means that we must find more economical methods of manufacture. We must maintain and improve present high standards of quality. We must find new ways to fit the product of our industry to the needs of end-users. Most important, we must sharpen our selling if we are to capitaiize fully on the inherent advantages of the engineered panel material.

New Products Pushed

Some of the greater sales promotion effort can best be carried forward for the industry by its trade association. Individual manufacturers share the responsibility. Georgia-Pacific Plywood Company continues to support the industry program of joint quality maintenance, product research and national advertising aimed in part at specifiers and in part at consumers. We believe that current efforts to tailor standard grades more closely to use needs will result in some of the answers.

On the other hand, our cooperative industry sales promotion program cannot reach maximum effectiveness without more wisdom and more aggressive direct selling on the part of the individual plywood firms.

Cognizant of this, Georgia-Pacific has not only introduced new improved plywood products to meet consumer requirements but is backing up those products with comprehensive packaged promotion which offers a profit opportunity to jobbers and dealers alike. WedgeWood, a new low cost textured wood paneling, is finding immediate outlets in both residential and light commercial construction. GPX GREEN, a new, exclusive, plastic faced plywood especially engineered for painting, is opening new markets throughout the country. Additional promotion on the new G-P exterior Decorator Doors to compliment modern style trends and give builders that extra value has substantially stimulated door sales for Georgia-Pacific.

Potential Not Fully Realized

Construction trends and industrial activity must be considered, and moderate declines in some categories are forecast for later this year by economists. Nonetheless, the low in-place cost of plywood and its high end-use value justifies the assumption that plywood can capture an ever-larger share of the market through aggressive selling.

The market potential for plywood remains yet to be fully realized as attested by the wide variation in per capita consumption throughout the nation. Plywood's properties are unequalled. Quality of product is assured. Better marketing is the key to greater end consumption of product. This devolves upon individual manufacturers to pursue orderly distribution so speculation is eliminated and customers specify and buy with confidence.

Waterproof Plywood Tested In Building British Silo

The Timber Development Association in Britain is running an experiment to see how grain silos constructed of plywood compare in efficiency with similar structures of aluminum, concrete and corrugated iron. Although plywood has been used successfully in America for silos, the British have not yet determined its suitability for the same use there. The plywood used in the test is ⅜-inch sapele, bonded with waterproof phenolic resin by radio frequency heating. Exterior plies were bonded with a special paper impregnated with phenolic resin before the plies were assembled for moulding.

"Keen Competition"

By
LAWRENCE OTTINGER
President, United States Plywood Corporation

We are all familiar with the extremely rapid expansion of the Douglas Fir Plywood industry on the West Coast. This is not a local phenomenon because plywood plants in large number have sprung up all over the world; most of them are hardwood mills although there are a number, notably in Brazil and Chile, which operate on softwoods.

Competition in those markets which are open is extremely keen and the effort to sell in the United States is particularly strong because England and the continental countries accept very little because of exchange difficulties and most of the countries which have established their own plywood production have either prohibitive duties or will not permit the importation of plywood at all.

At the moment the Fir plywood market is strong and I believe the demand through the year will be excellent and prices should remain about where they are if the mills exercise reasonable restraint on production. The hardwood markets have been much steadier and much better than the Fir plywood market because no such production expansion has taken place. There are indications now however, particularly on the West Coast, that hardwood production will be substantially increased.

So long as the artificially stimulated markets in this country can continue at their extremely high levels, the plywood business will be good. Personally, I do not feel that our economy can continue at its present pace for much too long and that we must look for some correction within the next year or so.

B.C. Climaxes Steady Production Climb With Record 440 MM Sq. Ft. in 1952

British Columbia's production of plywood continud to climb in 1952, and unless marketing conditions deteriorate to an extent not now anticipated, there should be another record during the current year.

In 1952, the eight major plants operating in the province's industry produced 440 million square feet of plywood ⅜-inch basis, compared with 406 million square feet in 1951. Total value of production was approximately $35 million.

All plywood produced in British Columbia is Douglas fir except for some Philippine mahogany plywood with Douglas fir core produced at Western Plywood Co.'s mill on the north arm of the Frazer River.

1952 was the first year during which the province's two newest mills, B.C. Forest Products at Victoria and Western Plywood (Cariboo) Ltd., operated throughout the period.

MacMillan Has Big Year

No mill operated continuously during the year, as the forest industry was tied up by strikes for about six weeks. Settlement of the dispute did not result in much higher costs of production, but the industry is faced by a fairly steadily rising labor bill.

MacMillan & Bloedel, Ltd., largest single plywood producer, with two large plants on Vancouver Island and the mainland produced 147 million square feet of plywood during the year ended September 30. Canadian Forest Products, with production of 124 million square feet ⅜-inch basis, had the largest single-mill output.

Market Largely Domestic

About 95 percent of the province's plywood is marketed in the domestic Canadian market, since exchange conditions have virtually eliminated most of the traditional overseas markets and tariffs, even though reduced, keep the Canadian product out of the U.S.

During the year, one company carried out extensive experiments with a view to developing a wall panel that could be used effectively in prefabricated construction. Provision was made for aluminum base and fibreglass insulation. However, the company is reported to have reached the conclusion that economic production can be carried out only on an assembly-line basis in a specially equipped plant.

Equipment Constantly Improved

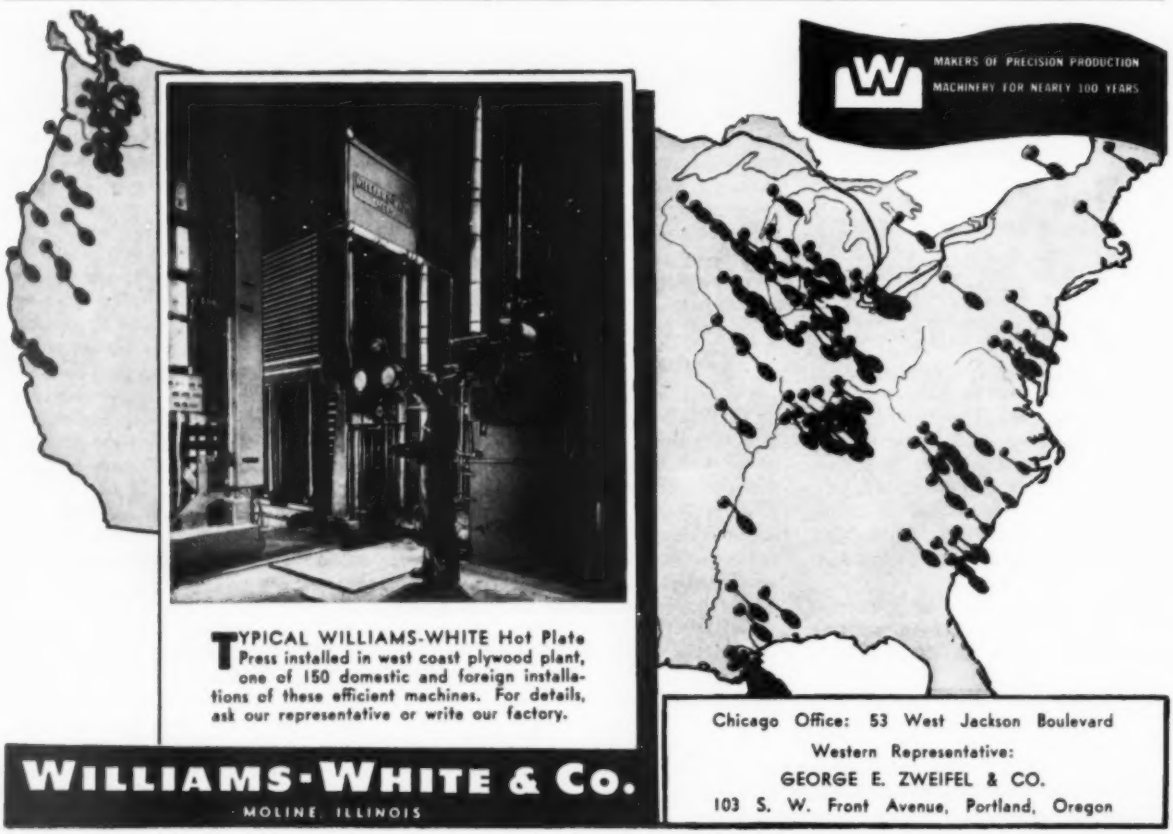
Most of the plywood production expansion in the province is now confined to the Alberni division of MacMillan & Bloedel and Canadian Forest Products Pacific Veneer Division, but at all mills new equip-

(Continued on Page 119)

BRITISH COLUMBIA PLYWOOD PRODUCTION

1941-1952—Square feet, ⅜-inch basis

1941	173,000,000
1942	184,000,000
1943	195,000,000
1944	218,000,000
1945	204,000,000
1946	224,000,000
1947	296,000,000
1948	338,000,000
1949	300,000,000
1950	349,000,000
1951	406,000,000
1952	440,000,000



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for the Plywood Industry

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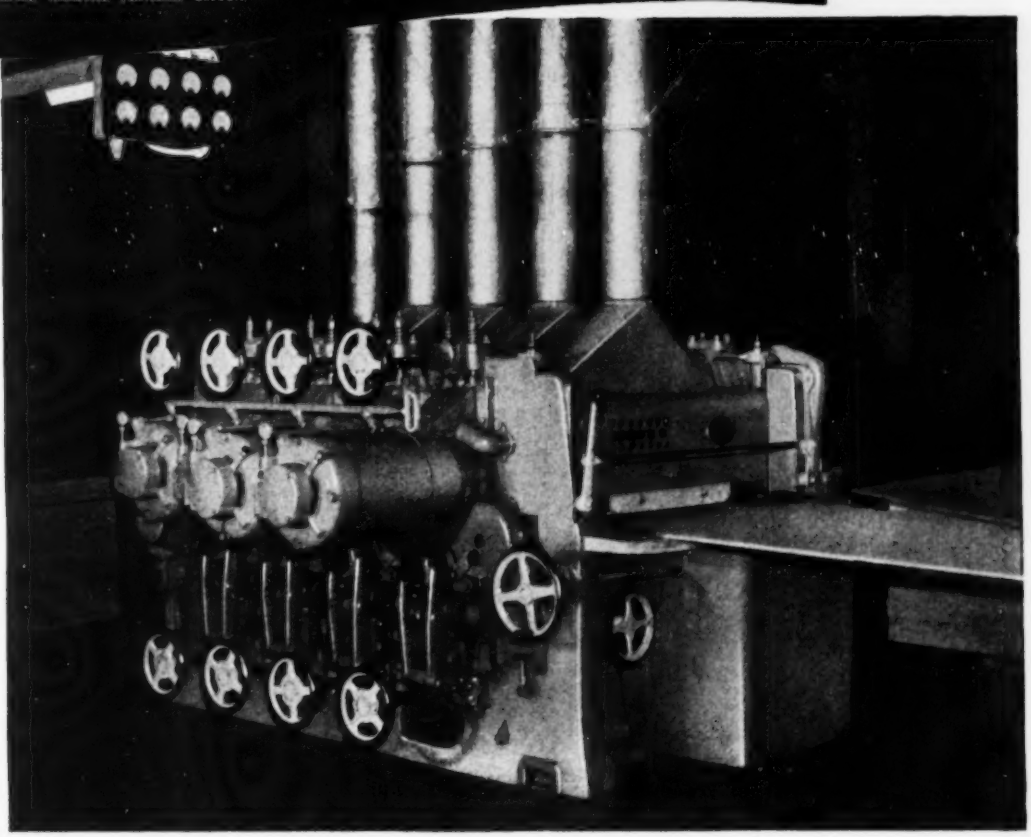
RESAWS
SANDERS



MATTISON 303 *Stroke Sander*

INCREASED PRODUCTION – BETTER QUALITY

UNITED STATES PLYWOOD CORPORATION

Manufacturers and Distributors of Waldwood Plywood and Allied Products

Seattle Office · 4005 Thirteenth Avenue West · Seattle 99, Washington

December 3, 1951

Mattison Machine Works
Rockford, Illinois

Attention: Mr. W. C. Haystrom

Gentlemen:

Your Mattison No. 303 Hydraulic Automatic Stroke Sander has been operating in our Seattle Plant for six weeks, sanding principally flush doors and hardwood faced plywood.

We find that we obtain not only increased production, but much better quality of sanding. Our operators are enthused about the machine because of its ease and simplicity of operation.

Among other outstanding features of this machine is the exacting control of the automatic stroke. We will be happy to recommend your machine to anyone you wish to refer to us.

Yours very truly,

UNITED STATES PLYWOOD CORPORATION

J. B. McFall
Engineer

JBMc/v

MACHINE WORKS

ROCKFORD · ILLINOIS

PLYWOOD ROOF TESTS SUCCESSFUL

A substantial increase in the specification of Douglas fir plywood roofs in school buildings and to some extent in commercial buildings has occurred as a result of one of the plywood industry's most significant research projects in recent years. This is the development of new design data demonstrating that the rigidity of plywood in subfloors and roof decks is more than adequate to resist the dangerous horizontal and shear forces set up within a structure by high winds, hurricanes and earthquakes.

These forces are met by what an engineer calls a diaphragm and the design method developed for this type of construction by the manufacturers makes it possible to specify plywood construction in large buildings in known quake areas. The tests from which the design data were developed culminated 14 months of study and constitute another achievement in the research program carried out for the industry by Douglas Fir Plywood Association.

Structural engineers throughout the country displayed considerable interest in the diaphragm test results and the action of the Uniform Building Code in accepting plywood diaphragms has probably stimulated the use of plywood in both school and commercial building.

These diaphragms are actually huge flat girders or I-beams in which plywood roof sheathing or subflooring serves as the web while the boundary members to which the plywood is nailed along the sides and ends of the roof serve as flanges. The flat girder is supported by the walls and is designed in its simplest conception to resist horizontal forces from earthquakes and high winds acting on the sidewalls and to transmit these forces through the end walls to the foundations.

Plywood had previously been accepted for conventional construction but until completion of these tests, it had not been fully recognized where diaphragm action was a design factor. The test data and the design methods developed from them have been made available to structural engineers and architects throughout the country so that they can specify plywood for quake-resistant construction in larger buildings like schools, warehouses, theaters, stores and factories.

FINAL PLYWOOD DIAPHRAGM TESTS were made on full-scale floor specimens like this one. Test specimens were 40 feet long and from 12 to 20 feet wide. Test data stimulated use of plywood in school roofs. Project of testing was carried out by Douglas Fir Plywood Association, Tacoma, Wash.

Western Plywood Company Limited

900 EAST KENT ST., VANCOUVER, B. C.

MANUFACTURERS OF FINE PLYWOODS

WITH THE UNIQUE BALANCED CONSTRUCTION

- NORTHERN POPLAR
- DOUGLAS FIR (P.M.B.C. Ext.)*
- SLICED AFRICAN MAHOGANY
- COMB GRAIN WHITE OAK
- WESTERN WHITE BIRCH

*PLYWOOD MANUFACTURERS ASSOCIATION OF BRITISH COLUMBIA EXTERIOR GRADE

Western Plywood (Cariboo) Limited

QUESNEL, B. C.

- STRUCTURPLY*
- CARIBOO SHEATHING

*INLAND DOUGLAS FIR WATERPROOF EXTERIOR GRADE

ASSOCIATIONS SERVE PRODUCERS AND CONSUMERS

PROMOTION IS 'SWIFT' IN B. C.

The "voice of the industry" in Canada is centered largely among members of the active Plywood Manufacturers of British Columbia, with headquarters in Vancouver. The organization conducts a vigorous and continuous sales promotion campaign as well as keeping watch on the quality of all plywood produced by its members and looking for new and better uses of plywood.

During 1952 the association launched its first Canada-wide campaign directed to architects, builders and home-owners to bring to their attention the distinctive properties and wide use-range of Douglas fir plywood. National advertising in the trade press and daily papers was effectively employed to reach both the big bulk-order "specifier" market, represented by the designers and the construction industry, and the mass consumer market comprising the general public, which has grown steadily in volume and influence with the increasing interest in home modernization.

Tied in with these vigorous advertising programs was a series of informative folders and booklets describing and illustrating the properties and uses of Douglas fir plywood and suggested methods of application. Association engineers and field men provided practical advice and information on plywood uses.

All Douglas fir plywood manufactured in British Columbia conforms with a definite standard adopted by members of the Plywood Manufacturers of B. C., whose secretary is J. B. Armstrong, 810 Hastings

(Continued on Page 108)

"Today's Challenge" Finding Market For New D. Fir Capacity

By
W. E. DIFFORD
Managing Director, Douglas Fir Plywood Association

Douglas fir plywood is a semi-raw material with high end-use values in scores of diverse markets ranging from homes to railroad cars. The versatility of the product combined with aggressive joint sales promotion has resulted in a record of spectacular expansion which has put the manufacturers under continuing pressure to meet a demand historically in excess of their capacity.

Today, the picture is changing. Last year west coast plywood plants found markets for 3 billion square feet of fir plywood. Simultaneously, their combined *capacity* reached 3.5 billion square feet and it will probably be slightly larger by year's end. This is the challenge of the present.

It can be met only by a program of intelligent, hard-hitting plywood sales promotion in the broadest possible sense of the word—a program encompassing the entire range of modern marketing techniques from product development in the laboratory to effective personal selling in the field. The industry's present system of quality maintenance, product research, market analysis and sales promotion in its narrower sense of media advertising and merchandising is that kind of a program. The remainder is the responsibility of the individual manufacturer.

Market Analysis Conducted

On the industry level, the manufacturers are exploring through their trade association every avenue of sales effort. They have just completed one of the most effective and detailed market analyses ever attempted in this industry. The survey presently serves as a guide-post for all phases of joint plywood promotion.

Simultaneously, the industry has already undertaken a careful appraisal of its present grading system applying to veneers and panel grades with an eye to product improvement to meet the requirements of buyers in all plywood-using markets. Other efforts are being made to improve quality of product through new manufacturing techniques with an eye to further minimizing such possible disadvantages as checking.

FHA Gives Approval

At the same time, the association is expanding plywood product research, developing more complete technical data making possible the specification of plywood in new and advanced building techniques. Typical of the pay-off in this kind of research is FHA approval of thin plywood roof decking over wide rafter spacing and increased use of plywood in large building projects subject to dangerous lateral shear loads set up by earthquakes and hurricanes.

The industry is also studying the

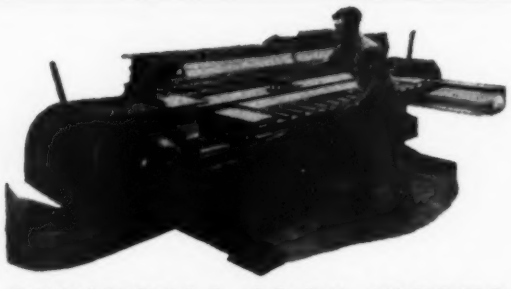
(Continued on Page 98)

DOES THE WORK OF TWO MACHINES . . .

Cutting and Polishing!

NYLUND DUAL-BELT SANDER

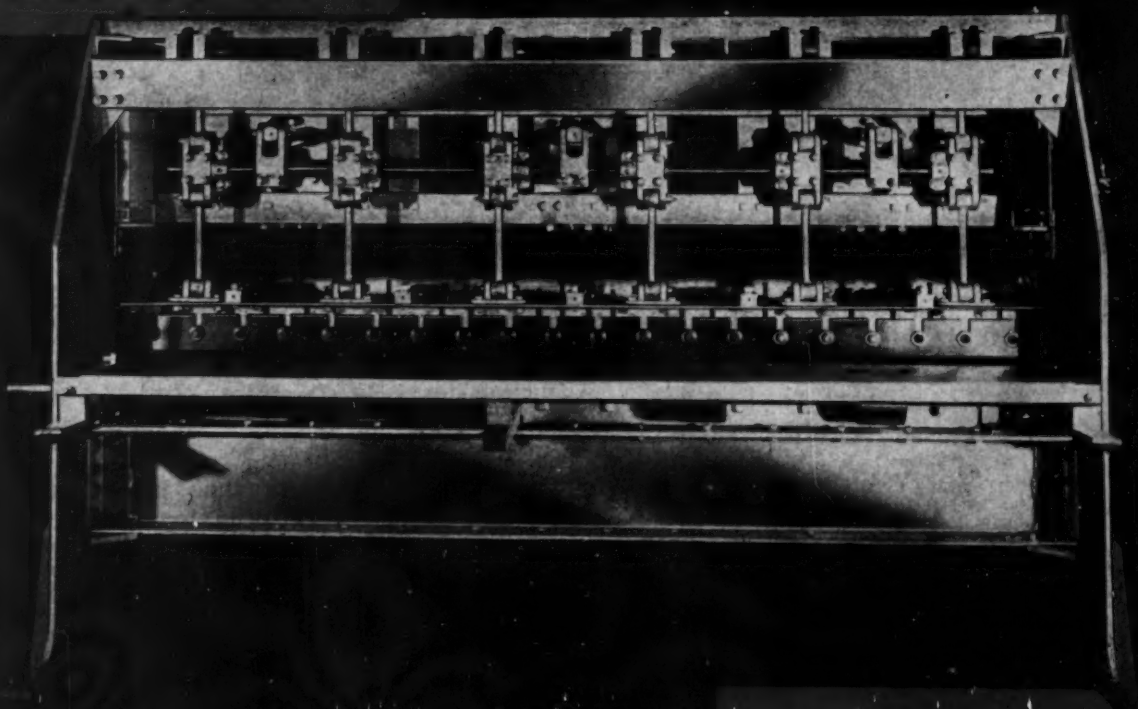
Thousands of man hours can be saved with the new NYLUND Dual-Belt Sander, if you are using one sander for cutting and another for polishing. Not only does the Nylund Sander save the work of moving stock between two machines, but it also requires only half the floor space. Best of all, the NYLUND Dual-Belt Sander costs very little more than a single-belt sander — and considerably less than two machines. John Nylund, who designed the Dual-Belt Sander, drew upon 30 years of production sanding experience in developing this precision-made machine of all-welded steel construction. Write for complete details.



PENINSULA IRON WORKS
BUILDERS OF PLYWOOD MACHINERY
6618 N. Alta Ave. PORTLAND 3, ORE. UNiversity 4461

GREATER VENEER RECOVERY

Achieved with the
ELLIOTT BAY SEMI-AUTOMATIC CLIPPER



FOR ALL VENEER OPERATIONS

Greater efficiency in veneer cutting is introduced by the Elliott Bay Semi-Automatic Clipper, proved by years of successful operation in many Douglas fir, pine and hardwood plywood factories.

Plant space is conserved as long storage trays are unnecessary; the Elliott Bay Clipper can be short-coupled to the lathe, with which it is synchronized at lathe speed.

Tearing of veneer is eliminated, thus saving raw material, the clean-cutting clipper knife operates against a long-lasting copper shear bar.

Push button controls afford accurate selectivity of veneer of varying widths. The advanced and tested Elliott Bay Clipper is of all-steel, precision construction. Ease of installation and minimum upkeep demonstrated repeatedly.

SAVES SPACE
FAST-ACTING
ACCURATE

ELLIOTT BAY PLYWOOD MACHINES COMPANY

600 West Spokane Street, Seattle 4, Washington

Sales Representative: WIENKER MACHINERY CO. Maritime Bldg., Seattle 4, Washington

"Today's Challenge

(Continued from Page 96)

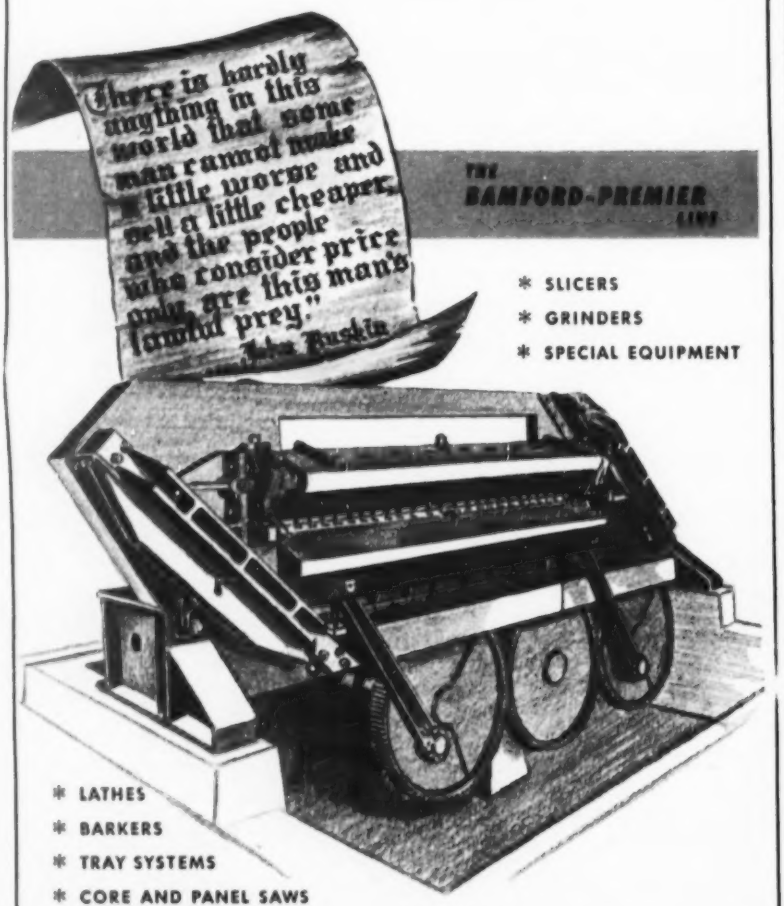
possibilities of new and allied products, such as plastic surfaced plywood and others now in the development stages, which widen present markets and increase the interest of buyers in established grades.

Underlying these activities is the industry's historically effective system of joint quality maintenance and registered industry trademarks established in 1938. Today, as a result of strong sales promotion, industry-owned trademarks are solidly wedded to high quality and integrity of product in the buyer's mind.

With all these supporting efforts, the industry can now look forward to getting maximum effectiveness from its media advertising, publicity, sales literature, dealer merchandising tools, use demonstrations and the host of other sales promotion activities. Today's plywood promotion is carefully integrated in an effort to enlist plywood jobbers, plywood salesmen and retail lumber dealers in a wholesale push to expand plywood sales in new and established markets. The current campaign in national consumer magazines featuring detailed plans for eight built-in storage units is an outstanding example of what the industry is doing in this direction.

ANOTHER PROVEN PRODUCT

101" x 14" VENEER SLICER


There is hardly anything in this world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's natural prey.
John Ruskin

THE BAMFORD-PREMIER LINE

* SLICERS
* GRINDERS
* SPECIAL EQUIPMENT

* LATHES
* BARKERS
* TRAY SYSTEMS
* CORE AND PANEL SAWS

MANUFACTURED BY
PREMIER GEAR & MACHINE WORKS
DESIGNED AND SOLD BY
CHAS. P. BAMFORD
SPECIAL MACHINERY
NEW FLIEDNER BUILDING • PORTLAND, ORE.

Retail, Industrial Campaigns Underway

Sales aids and merchandising tools for retail lumber yards which sell 50 per cent or more of the industry's output include a special counter display for the plans and everything else a dealer needs to capitalize on the campaign. Although it is too early to measure its effectiveness in terms of actual sales, the campaign has already aroused more enthusiasm in the trade than any other previous single promotion effort.

Other programs keyed to the construction and broad industrial fields are under way or in the planning stage.

Out of all this there is emerging a new concept of plywood sales promotion. It is a concept that sees the challenge of sales in terms of a comprehensive modern marketing program. And that is the only kind of a program which can adequately meet today's challenge—a healthy industry operating at a fair profit.

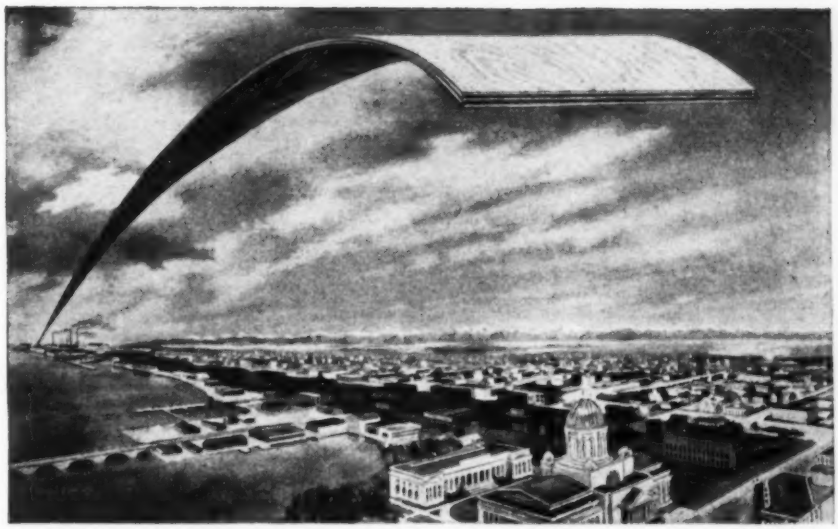
★ ★ ★ The Finnish plywood industry shipped its first export consignment in 1912. Since then, its production figures show a remarkable progress. Birch is the only wood which is used there in the manufacture of plywood. Thirty years ago birch was practically worthlesss, but the industry has since made this species valuable. The ideal birch tree for plywood is at least eight inches in diameter three feet above ground, straight, uniformly round, branchless and free from surface defects. Only about eight per cent of all birch veneer is suitable for facing. Only the process of jointing, plugging and scarfing enables the industry to operate.

Menasha First in SW Oregon Making Plastic-face Panels

Menasha Plywood Corp., North Bend, Ore., is the first Southwest Oregon plywood producer to go into manufacture of plastic-faced plywood. The panels combine the structural strength of Douglas fir plywood with the hard, smooth surface properties of plastic.

Four types are being turned out: high-density phenolic resin impregnated surface hot-pressed to "A" quality face veneers; high-density surface on "B" quality veneer; medium-density phenolic resin on one side only; and two-ply special-use panel where strength cross-lamination is not required.

The plastic overlay is supplied by Kimberly-Clark, Neenah, Wis.



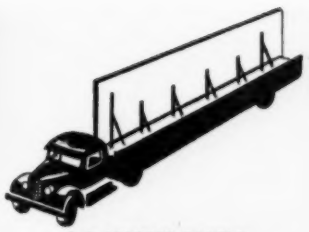
a "new dimension" IN PLYWOOD

Look at a G-P plywood panel and you'll see more than length, width and thickness. You'll see Georgia-Pacific's "new dimension"—*controlled quality*. A high standard of quality is an inherent part of every panel that leaves a G-P mill.

Georgia-Pacific offers a "new dimension" in product development, too, making plywood more versatile . . . opening up new applications in industry and construction . . . spelling a "new dimension" in sales opportunities. Three product leaders are G-P Giant Scarfed Panels, GPX Plastic-faced Plywood, and WedgeWood, the beautiful new decorative brushed Hemlock paneling.

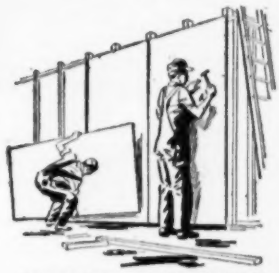
GEORGIA—PACIFIC
PLYWOOD COMPANY

OFFICES OR WAREHOUSES IN: Augusta, Baltimore, Birmingham, Boston, Chicago, Cleveland, Columbia, Detroit, Fort Worth, Lancaster, Los Angeles, Louisville, Memphis, Nashville, Newark, New Castle, New Hyde Park, New Orleans, Olympia, Orlando, Philadelphia, Pittsburgh, Providence, Raleigh, Richmond, Salinas, Savannah, Seattle, Spokane, Vineland.



G-P SCARFED PANELS

Made of exterior grade Douglas Fir Plywood to G-P's top-quality standards, these big, rugged panels are produced in regular lengths of 12 ft., 14 ft. and 16 ft. Custom sizes of any length or thickness can be made to your specifications. Scarfed joints, stronger than the panel itself, are smooth and invisible when painted.



GPX PLASTIC-FACED PLYWOOD

GPX, the miracle material, combines the lightweight strength of plywood with the rugged durability of phenolic resin plastic. Its unusual abrasion resistance and satin-smooth, armor-hard surface makes it a time-saving, cost-cutting material in hundreds of varied applications. It comes in four specialized grades and a range of thicknesses and overlay weights.

WedgeWood DECORATIVE PANELING

WedgeWood, a new decorative plywood, is made of Hemlock panels, brushed to raise the grain into beautiful, feathery relief. Unusual effects can be achieved with paint or stain finishes. It has created a sensation wherever it has been shown . . . and its low cost will make it a best seller in decorative paneling.

Evans has expanded its facilities for producing Douglas Fir Plywood

Now Evans Douglas Fir plywood customers will benefit from the greater flexibility which the facilities of an additional producing center make possible.

Evans has acquired a new plant for producing Douglas Fir plywood of exterior as well as interior grades. Located at Winchester, Oregon and adjacent to large tracts of Evans timber, this new plant is completely modern in all respects. All equipment is new.

May we prove to you the dependability of Evans quality service? Your orders will receive prompt and courteous attention. Evans Products Company, Dept. AH-3, Plymouth, Michigan. Western Division Mills at Coos Bay, Oregon; Winchester, Oregon; Vancouver, B. C.

EVANS DOUGLAS FIR PLYWOOD and WOOD PRODUCTS

Southern Hardwood Plywood Pushes Certification

By
JOHN L. BUTLER, Managing Director
Southern Plywood Mfrs. Association
Atlanta, Ga.

Since the inception by the Southern Plywood Manufacturers Association of a long-range industry quality control program in the spring of 1948 rapid progress has been made in the realization of its initial objectives.

The year 1950 saw the initiation of an inspection service as an activity of Southern Plywood Manufacturers Association. Through this service technical advice is made readily available to the mills to aid in the solution of their production problems. The services of a neutral arbiter is also available on request to assist in settling disputed plywood shipments.

Now in 1953 the S.P.M.A. with the establishment of, certificates of inspection for glue bond quality, takes steps to assist those mills who qualify in attaining proper recognition of their product.

Presentment to the association membership of the basic plans for this phase of the quality control program in July of 1952 won immediate and enthusiastic support. Details were developed during the subsequent months with the first certificates officially placed in use January 1, 1953. Nine Southern hardwood plywood mills are now either qualified and using the certificates or are in the process of becoming qualified. It is anticipated that within the year a large percentage of the mills and a substantial volume of shipments will have been covered.

This forward move is a phase of the consistent advancement the Association has made since it was formed in 1947. During the past six years, it was participated in and won representation in discussions pertaining to establishment and maintenance of national commercial standards. In the line of defense plywood needs, the Association and members not only supplied the needed products, but also brought certain defense needs into conformance with the commercial plywood standards.

In June of 1948 a modern plywood testing laboratory was established. This laboratory is now capable of performing all plywood and veneer tests required by present commercial standards or government specifications.

Glue Bond Tests: Those tests can be conducted in accordance with any commercial or government specification pertaining to hardwood plywood; *Moisture Content Tests:* Those tests can be made on plywood, veneer or lumber; *Specific Gravity Tests:* Those tests can also be made on plywood, veneer or lumber; *Mandrel Bending Tests:* Tests to determine the slope of grain; *Liquid Resin Glue Solids Content Tests:* These are standard to determine the percent non-volatile solids in a liquid resin adhesive.

Non-association mills may obtain the listed testing services at scheduled charges in lieu of membership dues.

An inspection service is available to both association and non-association mills at a schedule of charges applicable to both. This service is primarily for the purpose of making technical advice readily available to the mills to assist in the solution of problems affecting quality. A neutral arbiter is also available to help settle disputes regarding plywood shipments.

Custom Built for the Plywood Industry—

C&D MEEHANITE IRON CASTINGS

- HIGH TENSILE STRENGTH
- PRECISION CAST
- MAXIMUM MACHINABILITY

Illustrated: TYPE GA MEEHANITE 50,000 P.S.I. TENSILE HYDRAULIC HARDBOARD PRESS CYLINDER

PLY-MATIC EQUIPMENT

Ply-matic Barker
Prepares logs for the veneer lathe with minimum waste and effort. Handles logs 5 to 12 feet in length.

Ply-matic Shook Slicer
For high speed production of box or separator shook. Hydraulic feed. Wide range of adjustments.

Ply-matic Separator Groover
Produces 500 to 700 separators per minute. Adjustable to all standard sizes. Dual hopper feed. Two cutterhead assemblies supplied.

Write for illustrated literature.

CRAWFORD & DOHERTY FOUNDRY CO.
4604 S. E. 17th Avenue Portland, Oregon

LINN PLYWOOD CORPORATION

LIN-PLY

manufacturers of
DOUGLAS FIR PLYWOOD
interior grades
Albany, Oregon
TELEPHONE: 1634

Southern Oregon Plywood

a great product
with a solid heart
and a fine finish

SOUTHERN OREGON PLYWOODS, INC.
GRANTS PASS, OREGON

Manufacturers of

DOUGLAS FIR PLYWOOD
INTERIOR GRADES and
EXTERIOR GRADES

SOUTHERN REPORT

Considerable advancement was attained prior to 1952 in mechanization of the southern hardwood plywood plant. During the past period of months, emphasis has been placed upon the establishment of a quality standard for glue bond, and the manufacturers are now beginning to establish quality controls. In all probability the near future will see the southern industry engrossed in studies of production technique from which much can be expected.

The Amergrain process used to produce uniformly colored plywood in a Hampton, S.C., plant has attracted much attention. A spinning wheel throws abrasive material against the face, wearing off the soft part and leaving the hard (heart) portion. A second wheel throws pigment filler, which replaces the sap material, leaving a uniform color. Plankweld, a prefinished panel in 16¼ inch width designed to be put up in a wall by means of concealed fasteners is in good production in the Southwest.

McKnight Veneers, Inc., West Helena, Ark., of which French R. McKnight is principal, began production of southern hardwood panels and oak flooring panels in February, 1952. The plant is equipped with a hot press.

So many variant conditions apply that grading standards for peeler logs have never been developed. In recent years an extensive study of southern hardwood used in lumber production was successfully conducted to relate quality in yield to exterior blemishes in the log. During 1952 the School of Forestry, Duke University, initiated a study of grades for veneer logs, starting with appearance, diameter, and straightness.

Every effort is made by veneer and plywood producers to minimize waste of raw material. In the upper South where paper mills use hardwoods, veneer cores are used for pulpwood. In some box plants, cores are converted into cleats for use. In many instances, cores are put through a hog for conversion into fuel.

One-Third of 'Down-Easterns' Income Derived from Wood

Forest industries in the state of Maine rank as the leading industry. The major species are: spruce-fir in the northern part; white pine in the west; mixed hardwoods and softwoods in the southern part. A report states that one-third of Maine residents derive their livelihood from the forest.

Progress Report Finds Handy-Panels Doing Well

A year ago, west coast plywood manufacturers went into volume production of standard small sizes of plywood called Handy Panels.

Here's a brief report on the status of the program:

Initial response ranged from wholehearted enthusiasm to a cautious "wait and see" attitude on the part of plywood jobbers. In general, retailers who had "home trade" were enthusiastic in most instances. Interest has steadily grown, and now some 2,700 Handy Panel display racks have been ordered and requests are continuing to come in.

About 26 manufacturers are now marketing the new small sizes and the number of racks which have been ordered indicate an initial volume in the neighborhood of 2,000,000 square feet. With the "build-it-yourself" market still expanding, it is expected this item will constitute a continuing and profitable new outlet.

PACIFIC FOREST INDUSTRIES

Exporters of Plywood

TACOMA 2, WASH., U.S.A.

WASHINGTON BUILDING

★

EXPORT SALES ORGANIZATION
FOR PACIFIC NORTHWEST

★

Douglas Fir

PLYWOOD MANUFACTURERS

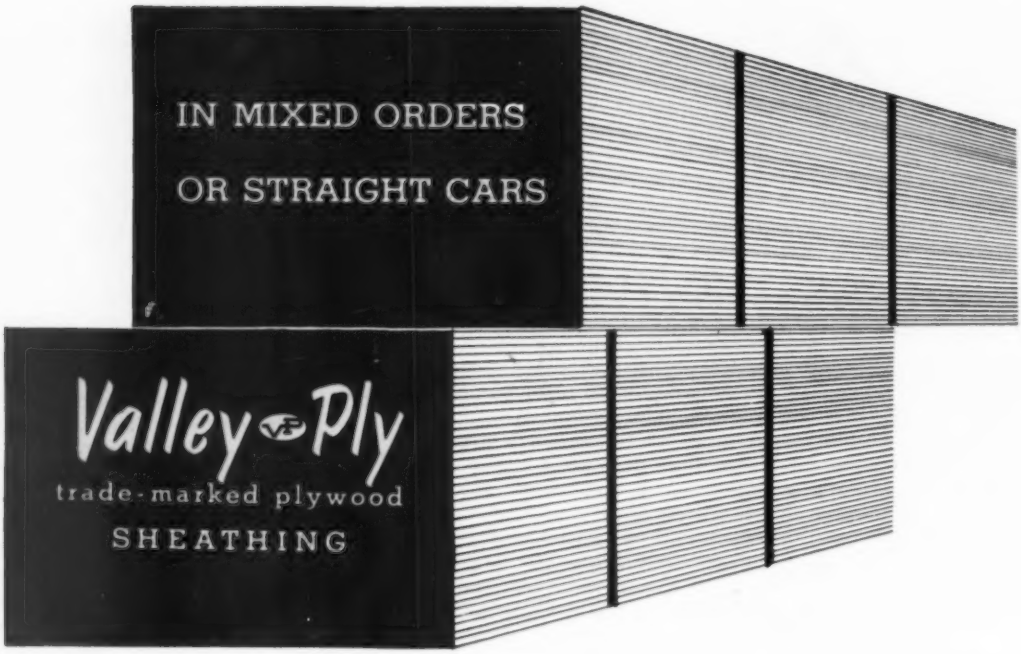
REGISTERED TRADE MARK

FIRPLY

MADE IN U. S. A.

CODES—ACME, BENTLEY, A.B.C. 6TH EDITION CABLE ADDRESS "FIREPLY"

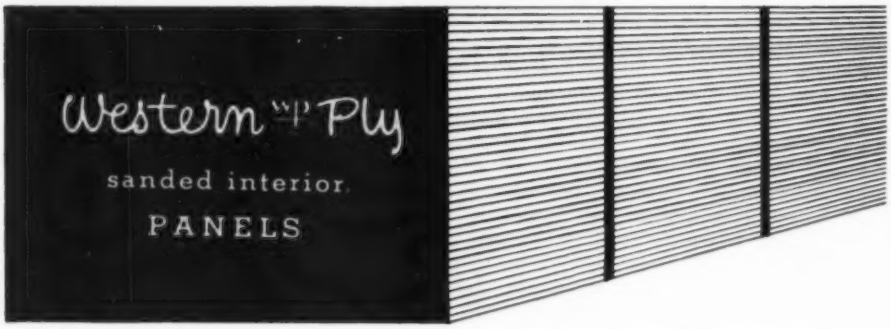
PROFIT COMES **EASIER**



Priced to replace boards, Valley Ply is now immediately available in all standard sizes and thicknesses $\frac{5}{16}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{5}{8}$ and $\frac{3}{4}$. Be sure to look for the Valley Ply grade-mark.

Call your supplier today for more information.

VALLEY PLYWOOD CO.
Box 789 • EUGENE, OREGON
Telephone 5-8491 • TWX-EG 147

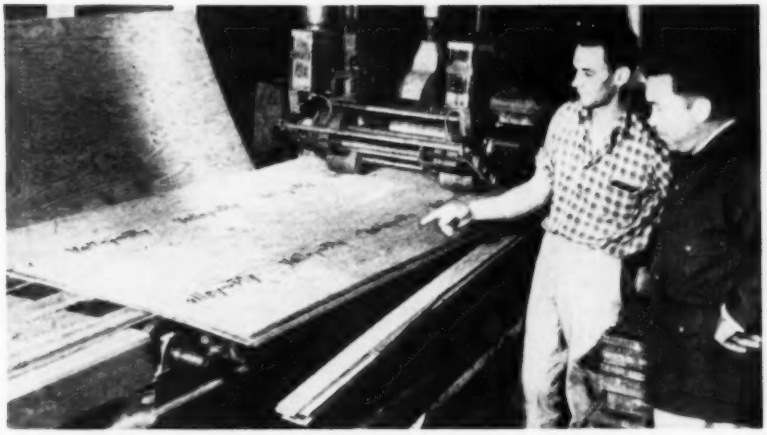


All sizes, all thicknesses, all grades for interiors, cabinets, built-ins, storage walls, partitions, ceilings and furniture. Order Western Ply when you order Valley Ply. Ask too, about easier handling...easier storage . . . easier inventory with strapped bundles.

WESTERN VENEER Company
Box 789 • EUGENE, OREGON
Member Douglas Fir Plywood Association

PRINTS TRADE NAME ON PANELS

Shown herewith is a trade-name printing machine at the Valley Plywood Co., Junction City, Oregon. Sheets come through the trimmer saw and printing is accomplished at the same time. Ivan Rothrock in the Valley Plywood plant has devoted a lot of time to developing this machine. Left to right are RALPH RUSSELL and NICK DAVISCOURT.



★ ★ ★ The Douglas Fir Plywood Association borrowed a "gimmick" from modern art and came up with a new sales aid which they claim has done more to make homeowners plywood conscious than practically any other previous idea. It is a "mobile." It is composed of five separate cardboard pieces hanging together by wires and suspended from the ceiling. The mobile flutters conspicuously with the motion of air in the room. Each piece is brightly colored and shows a picture of some use of plywood. More than 20,000 of them have been ordered by lumber dealers and trade buyers. The display-mobile keynoted the plywood industry's recent sales promotional campaign featuring fir plywood as "Today's Best Buy."

STATE HAVING TWO MILLION OR MORE ACRES IN NATIONAL FORESTS INCLUDE THE FOLLOWING:*

	Area million acres
California	20
Idaho	22.5
Alaska	21
Montana	19
Oregon	17
Colorado	15
Arizona	12
Washington	10
New Mexico	10
Utah	9
Wyoming	9
Michigan	5
Minnesota	5
Virginia	4.1
North Carolina	3.6
Missouri	3.5
Mississippi	2.8
Alabama	2.4
Wisconsin	2.0

In 1951 there were 151 separate national forests with a total of 180 million acres. National forests were found in 38 states and Alaska and Puerto Rico, and two other states had national forest purchase units. The gross area within the boundaries of the national forests is 230 million acres.

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14 opening 4'-0" x 8'-0" Siempelkamp hardboard press 750 lbs. PSI, on testing base.

Siempelkamp . . .
the *leading* hot plate press

The Siempelkamp Co. designed and built the first hot plate press over 70 years ago. The basic principle has become the standard for hot plate press manufacturers all over the world. The Siempelkamp Co. are acknowledged leaders in press design and sales. They have built plywood presses for the past 70 years and hardboard presses for the past 25 years. The plate type press for hardboard was developed by the Siempelkamp Co. to supply the need for a press that would give the utmost assurance of perfect parallelism with a minimum deflection. The frame is made from high tension armor plate steel, bolted together and machined in one operation. Number of rams is optional.

★ ★ ★

The Siempelkamp Co. has just completed the installation of a 20 opening 4'-0" x 16'-0" hardboard press in South Africa for the Masonite Co. A chipboard press is on order for the U. S. Plywood Co., Anderson, Calif., and a 4'-0" x 8'-0" 1000 lbs. PSI, 10-opening press with provision for an additional 10 openings is on order for the Washington Hardboard Products Co., in South Bend, Washington.

Pacific Coast Representatives

HEYER SALES & ENGINEERING CO.
1003 Washington Building • Tacoma 2, Washington

Southern Representatives **THE WILCO MACHINE WORKS**
MEMPHIS 8, TENNESSEE

your plywood reputation depends on the glues you use...

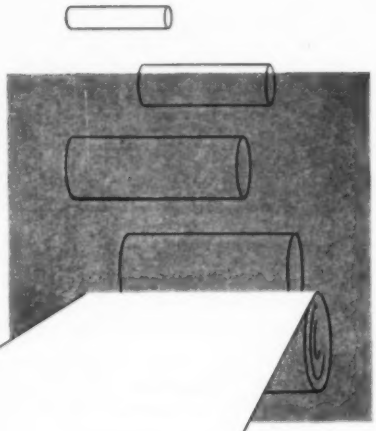
insist on *SILVACON

PROVEN PERFORMANCE . . . SILVACON'S record in the plywood industry is excellent for dependable and uniform quality at all times.

LOWER COST . . . SILVACON'S chemical characteristics make it possible to get greater extension of adhesives.

INCREASED PROFITS . . . SILVACON gives you lasting high quality at lower production cost, thus increasing profits for you.

UNLIMITED SUPPLY . . . SILVACON is made from Douglas fir bark right here in the Pacific Northwest. Prompt overnight deliveries to the Pacific Northwest plywood trade.



*SILVACON

is a product of

WEYERHAEUSER TIMBER COMPANY

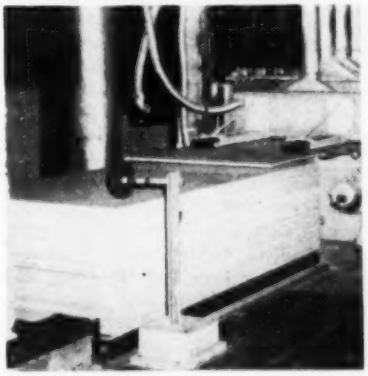
For full information write Special Products Division, Tacoma, Wash.

*Reg. Trade Mark

Juneau Plywood Mill To Boost Economy

A big boost to Alaska's economy is the establishment at Juneau, the capital city of the territory, of a new year-round industry. Alaska Plywood Corp.'s new plant is nearing completion and production of spruce panels is expected to begin soon. The corporation's president, Thomas A. Morgan, has been in the States during the past year in connection with machinery deliveries and arrangements for personnel to supervise the new production.

MECHANICAL OFF-BEARER



The plywood plant of the Long-Bell Lumber Co. at Weed, Calif., contains a mechanical off-bearer which operates behind a Yates-American sander and gives better quality control. The plywood panels are not graded at the sander but are re-graded and patched at a re-patching area. The mechanical off-bearer consists of a rack and pinion motor-driven elevator, micro-switch controlled. As the loads of panels accumulate at one end of the sander, they move off by rollers and go to a set of receiving rollers. Loads are then taken by electric dolly to a re-patching area where the panels are graded. Two panel re-patchers do both the grading and the finishing re-patching.

★★★REPORT RELEASED by Government shows that the *volume of timber treated in 1951* was the equivalent of 3,629,655,804 board feet, an increase of 164,203,704 board feet, or approximately five percent over the previous year.

WEBSTER MACHINERY CO.

820 1st Ave., S. Seattle, Wash. Phone MUtual 0233

Representing C. Kirk Hillman ELECTRIC DRIVES and Special Representative for Prescott-Seattle SAWMILL EQUIPMENT in Southern Oregon and Northern California on

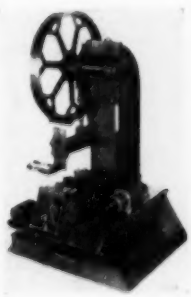
Illustrated here is the Prescott-Seattle Mechanical Lift Tim Saw

Mechanical Lift Trim Saws
Electric Setworks
Carriages
Edgers

Heavy duty Electric Carriage, Planer, Lathe and Machine Tool Drives.
Specialized Control Equipment.

NEW AND USED

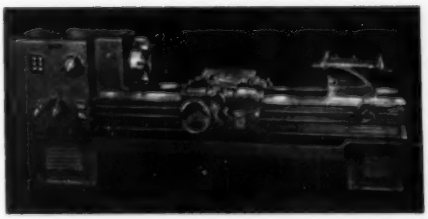
Veneer—Sawmill—Machine Tool and Electrical Equipment



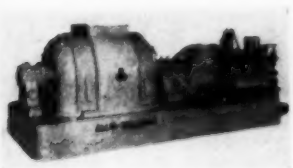
Pacific Resaw (right)—54" tilt feed roll 4-speed electric feed.

A WIDE VARIETY OF USED SAWMILL AND VENEER EQUIPMENT—

Send us your inquiry.



Sidney Engine Lathes



Complete Turbo-electric units

AIR COMPRESSORS • CRANES • USED FORK LIFT TRUCKS

Promotion Pace Swift in B.C.

(Continued from Page 96)

Street West, Vancouver. It has a completely weather-proof glue-line. The industry seals, "PMBC exterior" or "PMBC exterior sheathing," stamped on the edges of all panels conforming to the regulations set forth in the standard, are the consumers' assurance that the panel is bonded with phenolic-formaldehyde resin glues under rigidly controlled and inspected conditions. This standard has been of considerable importance in the extension of the market for plywood.

DESIGN CONTEST

Not least among the association's 1952 promotional activities was the nation-wide Plywood Home Design Competition initiated in November and carrying through until April, 1953.

Open to Canadian architects and students of architecture, this competition, which offers more than $4000 in cash prizes, is planned to familiarize architects with design potentialities of Douglas fir plywood, and to encourage initiative and ingenuity in evolving new decorative and practical forms in plywood furniture and built-in fixtures. The competition is being conducted in accordance with the Royal Architectural Institute of Canada's code for such events and the jury of award has been selected from leading Canadian and American architects, including Pietro Belluschi, A.I.A., of Massachusetts Institute of Technology, internationally known authority on modern architecture and design.

Along similar lines, the association has maintained representation on various committees carrying out the important task of revising Canada's National Building Code, and is cooperating closely with the design personnel of the Canadian Army, Navy and Air Force in connection with the nation's expanding defense program.

Geoff. Tullidge, general sales manager of Western Plywood Co., is chairman of the Plywood Manufacturers of B. C.

ALASKA PLYWOOD
SPRUCE PLYWOOD

SITKA SPRUCE PLYWOOD

IN PRODUCTION BY EARLY SUMMER

100% Hot Pressed Exterior Glue Line, Sanded Panels — Up To 5′ x 10′ in Standard Thicknesses

A High Quality, Lightweight Panel —Available Soon For U. S. Markets

ALASKA PLYWOOD CORPORATION

Juneau, Alaska

Western Pine Region Prospers

(Continued from Page 72)

developed by industry's Western Pine Assn., influenced lumber production and markets throughout the region. No longer is it unusual for individual lumber manufacturers to kiln dry 100% of their lumber production. How far industry has come in so short a time. It was in late 20s and early 30s that firms increasing kiln drying from around about 20 to 30 per cent of production to 100% tended to label the project "experimental."

Knotty Pine Popular

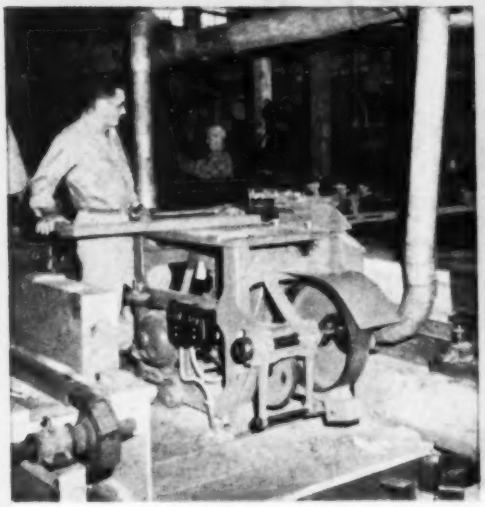
An indication of influence of modern kilns on lumber production: Due largely to successful improvements of kilns and kiln drying, No. 2 grade pine is no longer a "drug on the market." Instead, in the form of knotty pine panel, it's a lively market item. One mill executive states, "We can't now fill the demands for this grade."

Introducing pentachlorophenol in mid 30s as a means of treating lumber for rot resistance—especially for exterior sash, doors, and other wood items for which clean appearance is desirable—further expanded the region's lumber market potential.

Conversion of lumber by-product mill wood to such items as Pres-to-logs, wood flour, hog fuel, and chips for pulp is widely carried on. Furthermore, the trend in this direction is gathering momentum.

Last year the manufacture of pine plywood was upped considerably, pulp production assumed additional importance, and now two large hardboard plants are under construction in Western pine region.

Here's How One Door Manufacturer in the Northwest



improved cutting department efficiency

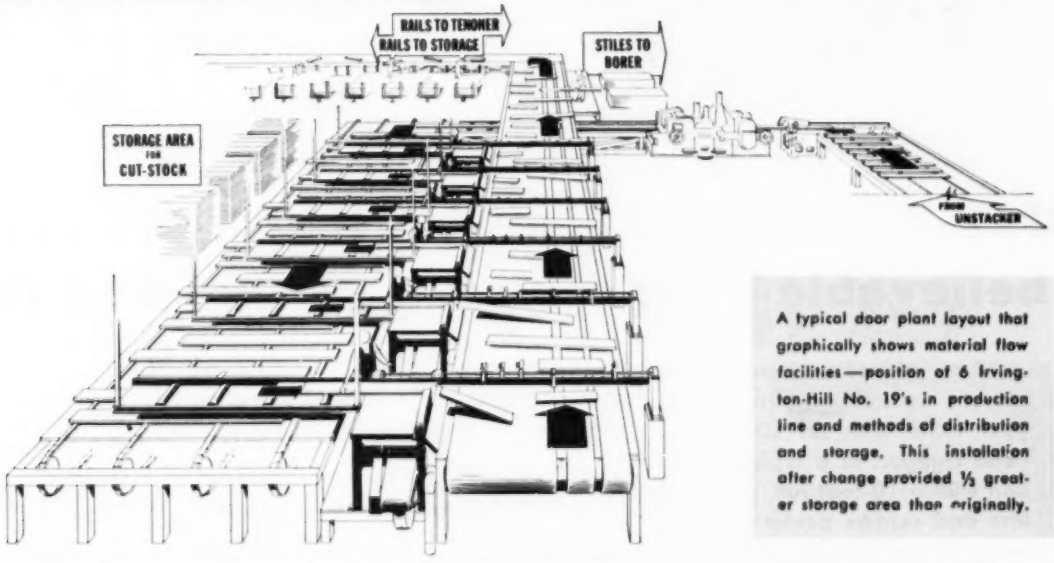
BETTER than 40%

with the aid of

IRVINGTON #19

Automatic and Semi-Automatic

CUT-OFF SAWS



A typical door plant layout that graphically shows material flow facilities—position of 6 Irvington-Hill No. 19's in production line and methods of distribution and storage. This installation after change provided ⅓ greater storage area than originally.

Is your cut-up plant squeezed between high production costs and a narrowing profit margin in today's competitive markets?

IRVINGTON No. 19 Cut-Off Saws can *help you* by reducing these production costs—by widening margins of production profit through increased cut-up plant efficiency!

Eye your own cut-up plant operation with this in mind—then write or phone us. Regardless of the size of your operation or your grade-cutting problem, we have a sound plan to offer. DON'T DELAY—WRITE OR PHONE TODAY!

Adaptable for Attachments To Fit Specific Needs

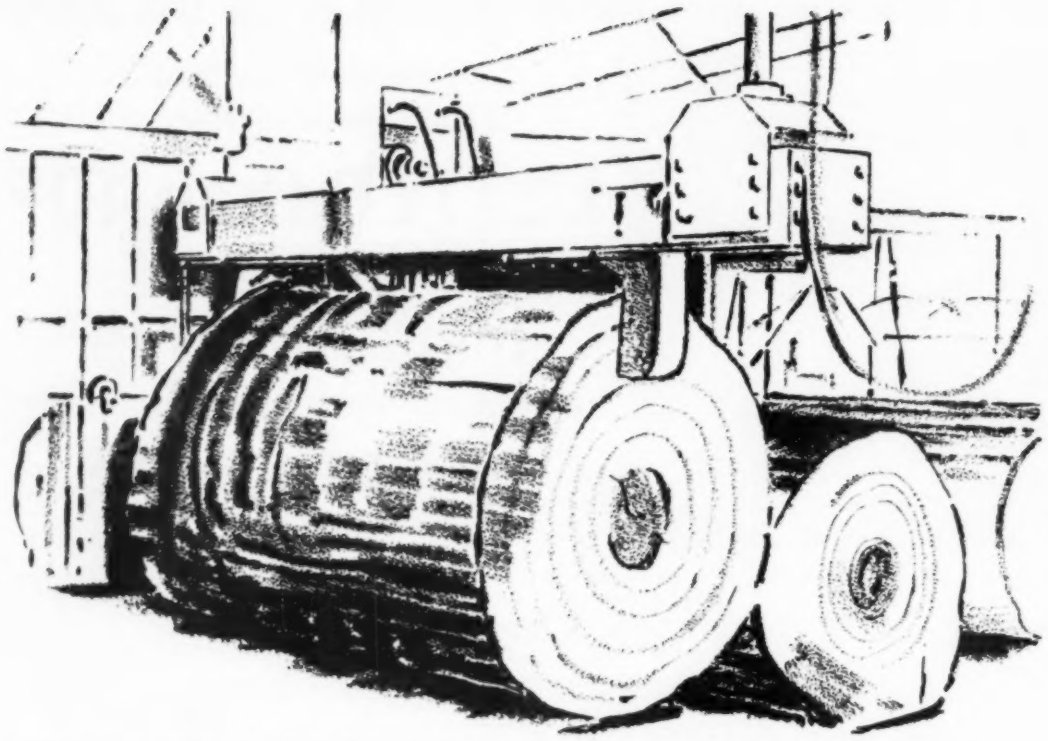
Full Vision of Work By Operator

Quick Change for Speed and Length of Stroke

Roller Table and Kicker Optional Equipment

Irvington MACHINE WORKS

TWO PLANTS: 1808 N.E. 7th Ave., Portland 12, Oregon. 3 Colfax N.E., Grand Rapids 5, Mich.

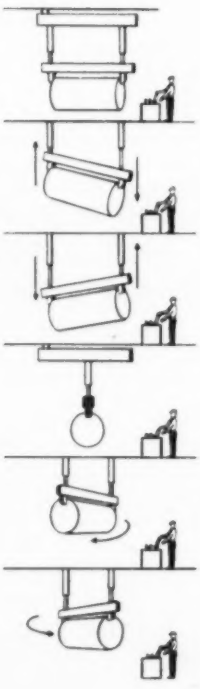


JUST 10 SECONDS CHUCKING TIME . . .
Unbelievable—but a stop-watch clocked it!

Many minutes are saved—and muscle as well—when you load your lathe with an EDERER overhead charger. In a typical installation with a 10-foot run, the charger lifts and centers peeler in 30 seconds, using a gun-sight projector for pre-aligning with lathe chucks . . . enters lathe in 10 seconds, stopping automatically at exact loading position . . . PEELER IS CHUCKED IN ANOTHER 10 SECONDS . . . charger returns to pick-up position in 10 seconds. No unnecessary idle lathe time—no time wasted jockeying peeler into position . . . lathe is stopped only long enough to release core block and chuck the pre-centered peeler.

Complete operation is electro-hydraulic from one set of controls, located wherever is convenient for the operator.

An EDERER overhead lathe charger for handling peelers of any size can be "job-engineered" to your exact requirements. Why not let us send you EDERER Overhead Lathe Charger Bulletin V-104?



EDERER ENGINEERING COMPANY

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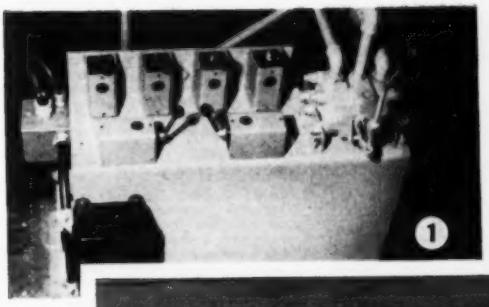
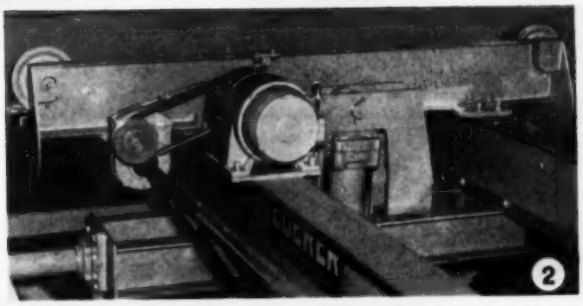
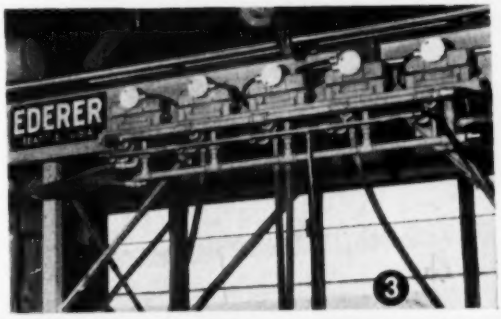
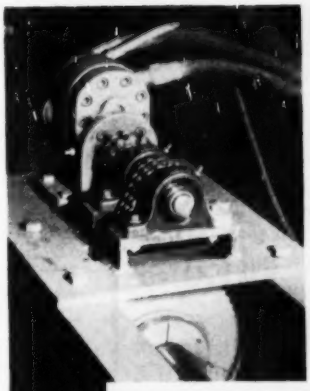
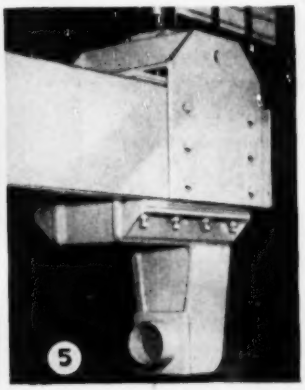
OVER 50 YEARS "JOB-ENGINEERING" PLYWOOD EQUIPMENT

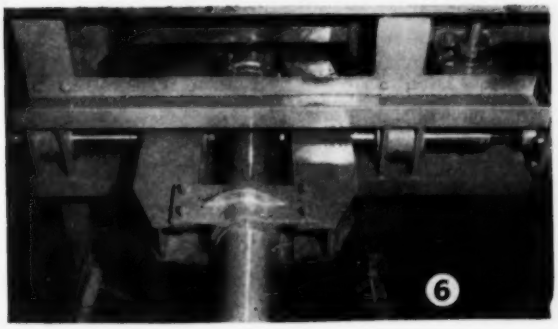












1. **OPERATING CONTROL UNIT** contains oil tank, hydraulic pump and motor, and all controls. One manual control governs speeds. Limit switches assure exact stops.

2. **DOUBLE V-BELT DRIVE** has tension bar for easy adjustment and is mounted on top girder for accessibility in maintenance and adjustment. Drive is rack and pinion, with single flange, roller-bearing mounted wheels.

3. **SOLENOID-OPERATED CONTROLS** for hydraulic operation are mounted on one single panel for easy accessibility and maintenance.

4. **HYDRAULIC MOTOR DRIVE** has flexible coupling, and operates a double roller-chain drive to screw to chucking block. All drives are roller-bearing mounted.

5. **SINGLE ACTION CHUCK** has bronze wearing strips on chucking block with adjustable set screws. Replacement time—only two minutes.

6. **SIX-INCH HORIZONTAL MOTION** each way gives plenty of leeway in picking up and moving peeler. Operation is all hydraulic.

All cylinders are for heavy duty service with automotive type piston rings, large diameter polished piston rods and honed cylinders of heavy wall seamless steel tubing.

As with all EDERER equipment "job-engineered" for the plywood industry, the overhead lathe charger is made for heavy duty, maximum performance and minimum maintenance.

212V53

EDERER

PLYWOOD EQUIPMENT

VENEER EDGE EVENER

An interesting mechanical device for evening edges of veneer to be jointed at a Merritt-Solem jointer is found at the Mutual Plywood Corp., Eureka, Calif. It was devised by Emil Traschsel, master mechanic. It consists of a set of arms, three on each side of the bundle of veneer to be jointed, which flip up and hold the bundle on edge. Then an air-powered eccentric shakes the bundle thoroughly. The operation of the eccentric and the arms are controlled by the jointer operator. The edges are shaken even and made ready for jointing much faster than doing the job by hand, according to the Mutual management.

NEW BRANDING UNIT

A new and compact branding unit has been developed at the Plywood Research Foundation for use by the member mills of the Douglas Fir Plywood Association in branding the Grade-Trade mark on the ends of plywood panels.

The unit is fabricated from stainless steel plate, using asbestos cement board for insulation. A special calrod on which strips of metal are welded to form a channel to receive the branding slugs fits between the two shaped steel plates. A hollow pistol grip handle is bolted to the bottom of these plates.

As no transformer is required, the operator need only place the desired brand slug in the channel, plug the unit into a 115 volt circuit and this light weight, handy unit is ready for use.

SAVE TIME • SAVE WASTE

SHADOW LINE GUIDE No. 2

Used in more plywood plants than any other make . . .

Widely used at the glue spreader throughout the plywood industry in detecting undersize pieces, it is also used on fish tail saws and in all operations for trimming and edging plywood panels.

LET SHADOW LINE GUIDES UP THE GRADES IN YOUR SAWMILL OPERATIONS

In such sawmill operations as edging, ripsawing and trimming, the SHADOW LINE GUIDE assists the operator in sizing up the stock, spotting the board and placing the saws in position to produce the largest percentage of high-grade stock with least waste.

STANDARD SIZES DELIVERED FROM STOCK ON HAND

SPECIAL SIZES MADE TO ORDER ON SHORT NOTICE

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Write for Full Details and Price List

MILL ENGINEERING & SUPPLY CO.

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Manufacturers of Gangmills for Economical Lumber Production

Anacortes Veneer Names California Sales Outlet

Announcement is made by H. W. McClary, general manager, Anacortes Veneer, Inc., Anacortes, Washington, that a new firm will now handle Anacortes Veneer products in California—Tacoma Lumber Sales, Inc., Statler Center, 900 Wilshire Blvd., Los Angeles.

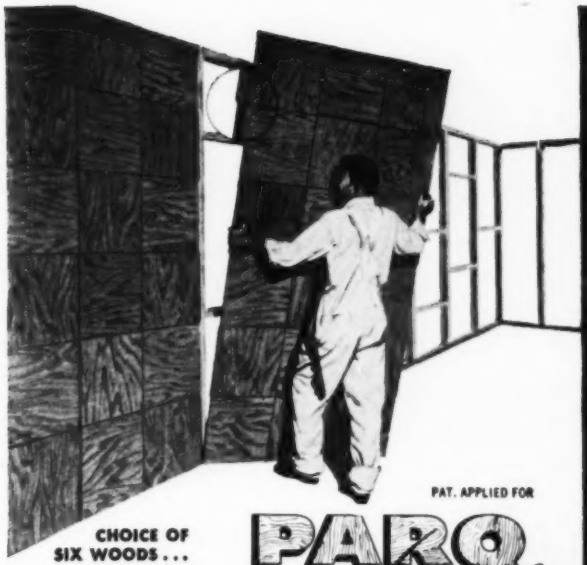
Tacoma Lumber Sales is one of the best-known wholesale lumber companies in California. The firm is headed by Arthur C. Penberthy, president, who has long been active in California wholesale circles and at one time served as President of the California Wholesale Lumber Association.

Associated with Tacoma Lumber Sales is V. V. (Vince) Besinque, formerly plywood sales manager of St. Paul and Tacoma Lumber Co., Tacoma. Besinque will specialize in the sale of Anacortes' new semi-dry process hardboard (Armorbord) and Anacortes' plastic-surfaced plywood product, Armoron.

The Los Angeles company will handle sales to recognized plywood and wholesale distributors. Direct carlot sales go to industrials will be made only in instances of known historical direct carlot purchasing and in cases of jobber inactivity.

Flush Doors 'Boom' in South

Production of flush doors continued apace in the South during 1952. Although Plywood Plastics Corp., a Westinghouse Electric subsidiary, was discontinued because of its parent's need for the plant at Hampton, S. C., another operation to produce the 2000 to 3000 doors in a new 100 by 200 foot plant was provided. The Walled Lake Door Co., Walled Lake, Mich., placed a factory branch at Eufaula, Ala., to produce 2400 flush doors daily.



3 panels that really SELL!

PARQUET WALLS... are rich, distinguished, and now economical. Pre-fabricated, T&G panels go up fast, save money, save time, save labor.

TEXTURED three-dimensional ETCH-wood has earned its popularity by its beauty and versatility. This beautiful raised grain panel is equally at home in modern or traditional surroundings.

PEGGED AND PLANKED walls give a warm, friendly atmosphere to any room. New ETCH-wall in easy-to-install sections is handsome, yet amazingly inexpensive —designed to sell on sight.

PAT. APPLIED FOR

CHOICE OF SIX WOODS...

Philippine Mahogany
Oriental Ash
Walnut
Birch
Sketchwood
Etchwood

PARQ Wall

46½" x 93'
31" x 31"

PARQ-Wall answers the demand of luxury minded homeowners who are also budget conscious—gives them the ultimate in wood paneling at a low cost. The large complete panels are **factory assembled** from 16" x 16" squares, tongue and grooved on all four edges, ready for fast, easy installation. Exclusive interlocking edge construction provides positive lock between panels, greater over-all panel stability.

...the original

ETCH Wood

3 ply—4' x 8' panels

Douglas fir plywood is selected for its grain, burnished to remove soft wood, leaving raised, hard surfaces. Etchwood takes any paint, stain or varnish . . . resists marring or scratching. Here's a panel that blends perfectly with modern or early American, gives a dramatic, three-dimensional effect in any room in the house. Insist upon genuine Etchwood.

¾" SOLID REDWOOD

ETCH Wall

new

PLANKED and PEGGED solid wood PANELING

Made of solid redwood. Random lengths and widths are **factory assembled** into convenient 10½" x 96" panels, tongue and grooved for easy, smooth installation. Surfaces are burnished to remove soft growth, leaving finished panel with gleaming, raised grain, oak hard surfaces. Easy to install, uniform panels make it simple to measure and compute cost ...smooth fitting joints slide into place readily.

NATIONAL DISTRIBUTION THROUGH LEADING PLYWOOD WHOLESALERS

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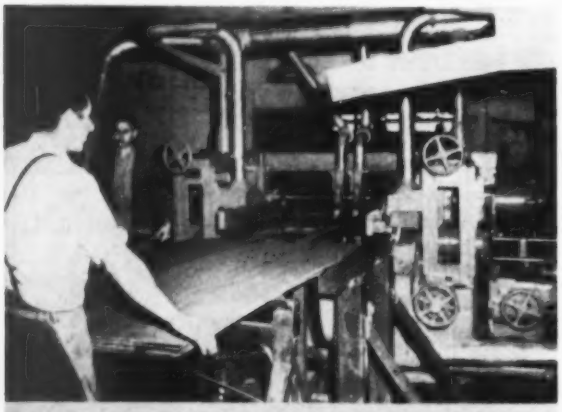
CREATORS OF DRAMATIC, VERSATILE PRODUCTS!

Precision Plywood Skinner Saw Installed

The precision, versatility and speed of woodworking equipment are being brought to the manufacture of plywood, according to officials of Greenlee Bros. and Co., Rockford, Illinois. The occasion for this comment was the installation in late February of a Greenlee precision skinner saw at the U.S. Plywood plant in Seattle.

The Greenlee skinner, when placed in operation, trims plywood panels at a rapid rate and with an unusually accurate tolerance. The machine was sold to U.S. Plywood through the Tallman Machinery Co., Seattle, and installation was supervised by Joel Jannenga, Greenlee chief engineer, and Vernon Carlson, field representative, assisted by George Coleman, U.S. Plywood master mechanic.



INFEED END of the new Greenlee skinner saw recently installed at the U. S. Plywood plant in Seattle. According to Greenlee engineers this machine is well known for accuracy, speed and versatility—holding 8-foot panels within .005 of an inch square. Skinner sawyer is Robert Goulet.

ON HAND to see the first plywood panels run through the new Greenlee skinner saw were (left to right)—Charles Howard of Tallman Machinery Co., Seattle; Joel Jannenga, chief engineer of Greenlee Bros. and Co., Rockford, Illinois; James M. Tallman of Tallman Machinery; and Vernon Carlson, field representative for Greenlee.

According to the manufacturer, the Greenlee skinner saw will hold 8-foot panels within .005-in. tolerance and keep them square.

The machine can also be equipped to hog edgings. This is done by means of hogging attachments, which dispose of the edgings right at the machine, eliminating the need of waste conveyors and auxiliary fuel hogs.

Similar Greenlee machines will soon be installed at St. Paul and Tacoma Lumber Co. plywood division at Olympia, Wash.; Alaska Plywood Corporation, Juneau, Alaska; and Viking Plywood Co., Eugene, Ore. Representing Tallman Machinery Company in these transactions are James M. Tallman and Charles Howard.

Damage Studied

Drs. P. T. Trussell and C. O. Fulton of the British Columbia Research Council, Vancouver, are working on tests aimed at the reduction or elimination of the teredo menace in log booms.

Call!

NORTH-ROBBINS PLYWOOD, Inc.

Carload Shipments

FIR PLYWOOD—INTERIOR AND EXTERIOR

HOUSE DOORS — CRAW-FIR-DORS
WINDOWS, SASH — FIR MOULDINGS
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and
INTERIOR
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Manufactured by

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AND PLYWOOD CORPORATION
Bellingham, Wash.

Sales Representative:
Richard T. Babcock,
472 South Lincoln, Kankakee, Ill.

VALUABLE USES FOR PLYWOOD LEFTOVERS

The plywood industry can point with pride to the great strides that have been made in getting fuller utilization and value from peeler core and veneer-scrap leftovers. At least half a dozen accessory operations have been started from the by-products of plywood manufacture.

Probably the biggest use made of leftovers is in the making of wood pulp chips from veneer scraps. This practice is found in a majority of the plywood plants on the West Coast. A popular model is the 66-in. veneer chipper especially designed for this use. Chips are barged, trucked or hauled by rail to pulp mills. Anacortes Veneer, Inc., Anacortes, Wash., chip and screen all their own veneer scraps, as well as cores to provide raw material for the new hardboard plant. Cores are chipped at some other plants or sold whole to pulp mills. Many mills burn veneer scraps to make steam for their own power needs.

Stud Mills Are Core Users

A fairly recent development has been the installation of stud mills, either by the plywood plant itself or by local private operators, to utilize the cores. With the tremendous building boom in housing, eight-foot 2x4's have found a ready market.

The convenient smooth, round shape of cores has made them ideal for fuel wood and many mills sell them on this market. A Grays Harbor plywood plant sends fir cores to the stud mill and spruce cores to the pulp mill. Cores from West Coast Plywood Co., Aberdeen, Wash., go for firewood. Sawdust and sanderdust from this plant go into the manufacture of a hard, resinous face for plywood, known as "Welchboard".

One softwood veneer factory making produce container lids saws its fir cores into container crosspieces. The same factory sends all its hemlock cores to a local pulp mill.

Core Lathe Useful Device

Development of the core lathe, which will take a one-foot-plus diameter peeler core from the main lathe and peel off additional veneer until the core is approximately five inches in diameter, has gone a long way towards getting more wood of a higher value.

Coast Veneer Co. at Portland is now getting dollar returns on cores that were formerly considered waste and had to be hauled away by outsiders. Their cores are first bucked into short lengths and then split lengthwise (using an L-M electric deck saw 220 volt, 15 HP). This operation breaks the big cores into sizes that can then be fed into a chipper and sold for pulp chips. Dave Yahn of the company states that the bucking and splitting are accomplished just as fast as the cores become available.

Core sections above now are considered "money in the bank" for Coast Veneer of Portland. The peeler cores at this plant were once hauled away by outsiders; a new method of bucking and splitting cores by electric saw to chippable sizes has meant additional revenue to the plant owners and a stretching of today's wood supply.

MTC

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9. McFall Glue Spreaders
10. Orton Machine Co.
11. James L. Taylor Mfg. Co.
12. Solem Machine Co.

Let us furnish you with information on precision skinner and cut-off saws, sanders, plywood presses, glue spreaders, hogs, scarfing equipment and clippers. Also moulders, ripsaws, surfacers, resaws and many other plywood and woodworking machines.

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SEATTLE 99, WASHINGTON

Rezon plastic overlay material

FOR NEW MARKETS

There are hundreds of *new* uses for plywood surfaced with Rezon . . . the plastic overlay of phenolic resins and cellulose fibres that is s-m-o-o-t-h and hard, yet has the perfect surface to take, and hold, paint.

Rezonized plywood is ideal for exterior use. Two coats of paint do the work of three . . . and the paint film will last two or three times as long as on wood. This represents a saving in labor and materials costs that more than justifies the up-charge for this premium quality board.

Because the water absorption of Rezonized plywood is less than one-fourth that of standard plywood, and because the wood fibres are coated, bonded and protected by a known weatherproof material . . . phenolic resin . . . this wonder material will stand years of exposure to the elements without checking or grain-rise.

And, because its surface is as smooth and grainless as metal, Rezonized plywood gives that modern look to *interior* cabinets, partitions, doors and counters.

New uses mean new markets . . . and greater sales at a premium price. Why not cash in on these new sales opportunities?

TORTURE-TESTED

A piece of unpainted Rezonized plywood was put through this laboratory test not once, but *six times:* Immersion in water at 120° for one hour; sprayed with wet steam for three hours; stored at 10° above zero for twenty hours; oven-dried at 212° for three hours; steam sprayed for three hours; oven-dried for twenty hours. Condition . . . *perfect,* except for slight discoloration.

REZON OVERLAY WILL EMBOSS

Rezon is the *only* plastic overlay that will emboss to create interesting new textures . . . still further expanding your market in new fields.

FOR GREATER PROFITS

Because Rezonized plywood commands a premium price . . . and is worth the up-charge . . . you can show a notable increase in profit per board foot of capacity.

When you are operating at capacity, that means greater income without plant expansion. When the market is off, the higher square-foot price of Rezonized plywood and the greater demand created by new uses for this multi-purpose board can have an important part in maintaining your volume and net return.

REZON COSTS YOU LESS

Despite its superior qualities, *Rezon resin overlay will cost you less* than any competing product . . . another profit factor for the plywood mill.

TRAINED EXPERTS AT YOUR SERVICE

Crown Zellerbach representatives will explain the application of Rezon overlay as the plywood is made . . . and will show you how to find and open new markets for Rezonized premium-quality board. Write us at the address below for full details.

CREATED AND TESTED IN THE LABORATORIES OF

CROWN ZELLERBACH CORPORATION

343 SANSOME STREET, SAN FRANCISCO 19, CALIFORNIA

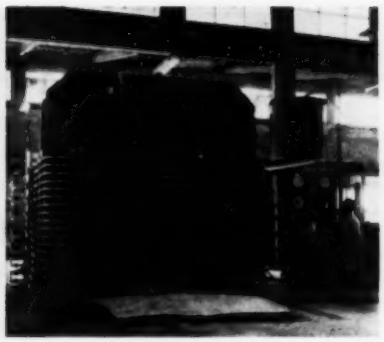
THERE'S A REASON FOR REZON, BECAUSE IT CREATES "PLYWOOD WITH A PLUS"

Israel's Plywood Industry Uses African Hardwood

THE LUMBERMAN is indebted to Messrs. Ernest Aschner, Editor ECONOMIC HORIZONS, Jewish Agency for Palestine, and M. Kritchman, former manager of a plywood plant in Israel and at present manager of the new Sefen hardboard plant, for this first-hand report on the plywood industry of Israel.

ERNEST ASCHNER
Jewish Agency
for Palestine
Editor,
ECONOMIC
HORIZONS

Plywood production in Israel is a small but important factor in that small but important country. Two plywood plants, with a combined monthly capacity of 3,000,000 square feet, have been in production for five years, a third plant will go into production sometime during the summer of 1953.



LEFT—Part of the Keled plywood factory at Afikim in the Jordan Valley. Logs are imported to Israel from French Equatorial Africa, Gold Coast and Nigeria. RIGHT—Plywood press in the Taal factory near Pardess Hannah in the coastal plain between Tel Aviv and Haifa. Israel plywood has had substantial success on the world markets and is a vital factor for the economic health of Israel. Earnings from plywood abroad pay for raw materials from other countries.

Logs for Israel's plywood are imported from French Equatorial Africa, Gold Coast and Nigeria. The species are okoume, obeche and mahogany.

About 20% of Israel's plywood is being exported to England and to the United States. 80% of Israel's plywood is in thicknesses up to ¼ inch. No overlays or decorative plywoods are produced. Consumption within Israel is strictly controlled, restricted to vital buildings, utility furniture and industrial uses. The finer grades of plywood are exported. Within the restricted consumption, Israel's plywood plants are supplying the requirements of the domestic market.

America, Israel Finance Together

Oldest of the plywood plants is Taal Plywood Factory, at Kibbutz Mishmarot, near Pardess Hannah. Taal, which has been producing for some six years, is owned by private American and Israel capital, in conjunction with cooperative Israel capital. It is located within a cooperative Jewish settlement, or "kibbutz."

(Continued on Page 119)

K-H PUTS PERFORMANCE IN "ALL ELECTRIC" DRIVES

PLANNED FOR PROFIT
ENGINEERED FOR HIGH PRODUCTION

Plywood plants all over the west report substantial increases in production as a direct result of the Hillman variable speed electric drives—built for rugged usage, to save maintenance and down time. High quality veneer at substantial savings assured with Kirk Hillman lathe drives, tray drives, feed drives and clipper table drives.

Before you decide on any lathe drive at any price investigate K-H lathe drives. Feature full power over wide speed range, "finger tip" control, operates with maximum speed efficiency at any speed setting.

For Further Engineering Information on Kirk Hillman Drives Send for Bulletin 53-LP

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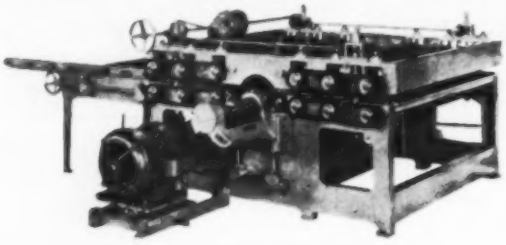
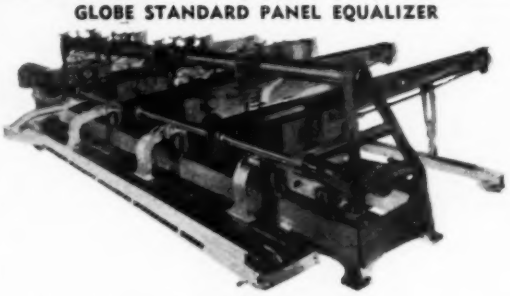


GLOBE HIGH SPEED HEAVY DUTY PANEL RIP SAW

An extremely accurate machine of heavy, rugged design used by most of the large plywood mills.

GLOBE STANDARD PANEL EQUALIZER



The GLOBE Panel Equalizer can be built for panels up to 5' x 12' and will cut multiple pieces as narrow as 11".

GLOBE TRAVELING HEAD VENEER JOINTER

The GLOBE Traveling Head Jointer used in plants where extreme accuracy is required.

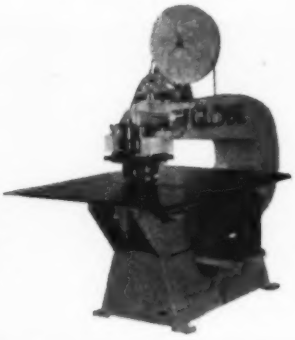
GLOBE SCARFER

Will scarf 1-inch panels on 12 to 1 ratio. Can be built for 72-inch to 84-inch panels. Heavily built to extreme accuracy. Readily adjustable to all angles. Air actuated clamps.

GLOBE GLUE SPREADER

The GLOBE Glue Spreaders give the most uniform and accurate guiding lines. Unvarying results over long periods without attention.

GLOBE TAPING MACHINE



The GLOBE Taping Machine for quickly and accurately applying tape to spliced joints.

OTHER DEPENDABLE GLOBE PRODUCTS

Shim Cutters • Defect Cutters (Boat Type, Sled Type, Round Type)
Hot Patchers • Patch Cutters • Core Saws • Barkers • Scarfers

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MACHINE MANUFACTURING CO., INC.
301 EAST 11TH STREET • TACOMA 2, WASHINGTON • MAIN 2347

ISRAEL

Israel's Plywood Industry

(Continued from Page 117)

Production is about 1,000,000 square feet of plywood per month. In its 54,000-square-foot plant some 100 workers are employed. Equipment is primarily American. Some of the machinery was supplied by Czech, Swiss and Israel manufacturers.

Largest producer of plywood is Kelet-Afikim Ltd., in Afikim, another cooperative settlement, with a monthly production of 2,000,000 square feet. Kelet's equipment is American except for one 10-opening Swedish hot press. This equipment consists of unloading cranes, 3 Coe lathes, core dryers, Merritt-Solem jointers, Diehl splicers, Williams-White 15-opening 4x8 hot plate press, Black glue spreaders, Mereen-Johnson trim saws, and Solem sanders. Kelet began operations in 1948, produced 6000 cubic meters in 1950, then installed new equipment and increased its production to 8500 cubic meters in 1951, also increasing its labor force from 170 to 250.

The newest Israel plywood plant is Etz Lavud Ltd., at Petah Tikvah, near Tel Aviv. The main building, 37,000 square feet, has been erected and machinery is being installed. Equipment is from England and Western Europe. Annual production is expected to be 9600 cubic meters of plywood products—6000 of panels. Employees will number 100 to 120.

New Hardboard Factory

Newest forest products plant in the Israel scene is that of Sefen Ltd., manufacturer of hardboard and insulation boards. Sefen will be under the management of M. Kritchman, formerly manager of Kelet-Afikim. Production is expected to get underway this summer with 150,000 square feet per day of ⅛ inch hardboard. The plant was designed by U.S. Wallboard Machinery Co. and is equipped with all American machinery except for one German press and certain loading and unloading equipment from Sweden.

Sefen will produce a smooth 2-side hardboard made from veneer waste from the plywood plants and from native grown eucalyptus. The process to be used calls for a minimum of chemicals and no special binder.

Sefen is a joint venture of an American investment group, Israel Fibreboard Products Corp., headed by Ampal-American Palestine Trading Corp. in New York, and five cooperative settlements in Israel. Total investment is $4,000,000, with stock being owned on a 50-50 basis between American and Israel interests.

Total Construction Jumps 5%

A record volume of $32.3 billion was spent for new construction in 1952, according to preliminary estimates of the Department of Commerce. This is an increase of 5% over 1951. Much of the increase is attributable to the many homes which were started last fall.

B. C. Climaxes Steady Climb

(Continued from Page 92)

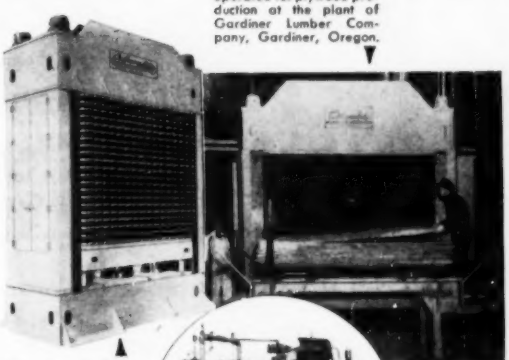
ment is constantly being installed to maintain or improve quality.

There has been talk of establishing a plywood plant at Prince George by Edmonton interests, but nothing definite has so far been done, and the program of Celgar Development at Castlegar, a Celanese Corp. sudsidiary, will probably not reach the construction stage for at least another year. Eventually, it is proposed to operate an integrated lumber, plywood, pulp and newsprint mill there.

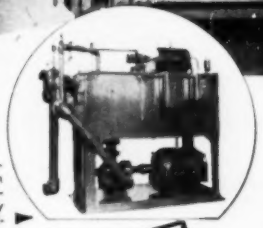
Smooth... PRODUCTION-PROVED PLYWOOD PRESSES

Columbia Hydraulic Hot Plate Press design exclusives are production-proved . . . and smooth . . . . .

One of two 4' x 8', sixteen opening Columbia Hydraulic Hot Plate Presses operated for plywood production at the plant of Gardiner Lumber Company, Gardiner, Oregon.



20 daylight Standard Columbia Hydraulic Hot Plate Press, open.



Columbia Hydraulic System showing arrangement for gravity feed to high volume pump.

Other Columbia design exclusives influence platen heating, labyrinth features, steam lines, opening and timing, pumps and pressure lines, and even use of materials.
To get the full story, write for our free Bulletin No. 5236. Address Columbia Machinery and Engineering Corporation, Hamilton 5, Ohio.

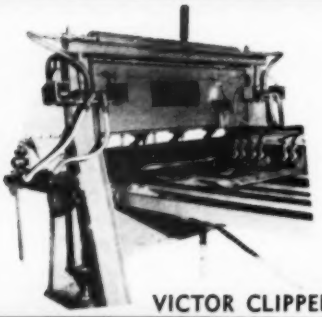
Consider ONE FEATURE

A high volume pump and a high pressure pump, pumping oil directly into the cylinders, operates simultaneously to close the press. At the start of the pressure stroke, the high volume pump cuts out while the high pressure pump continues without interruption. The usual drop in pressure at this change-over point is eliminated; operation is smoothed.
As preset pressure is attained, and the high pressure pump motor cuts out, excess oil, pumped during coast of motor, by-passes through a solenoid valve to prevent override of pressure. Smooth!
So too, a special pilot operated drain valve provides for the smooth release of pressure and rapid press opening at end of cycle.

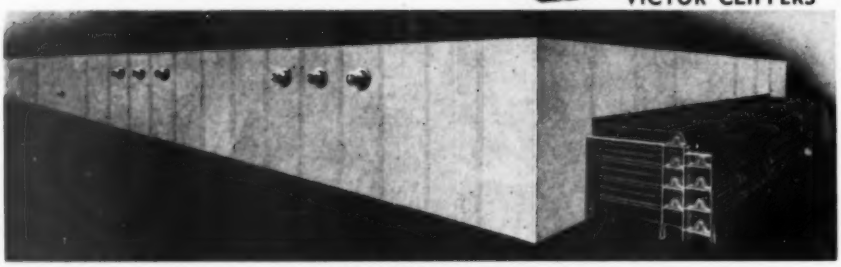
new series Columbia HYDRAULIC HOT PLATE PRESSES

COMPLETE GREEN END EQUIPMENT

JACKSON LATHES



VICTOR CLIPPERS



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PENINSULA VENEER HOGS.

JACKSON VENEER CHIPPERS.

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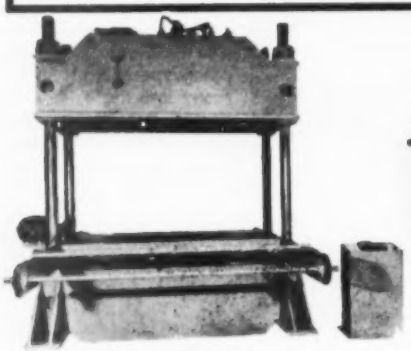
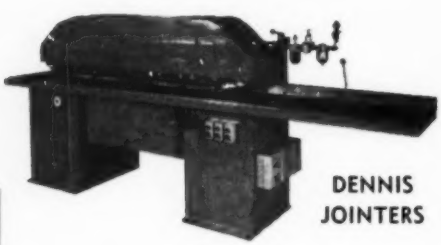
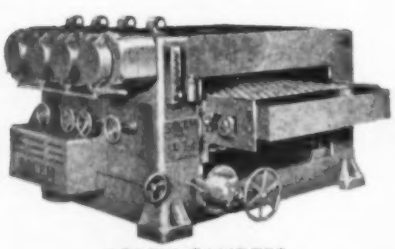


COLD PRESSES

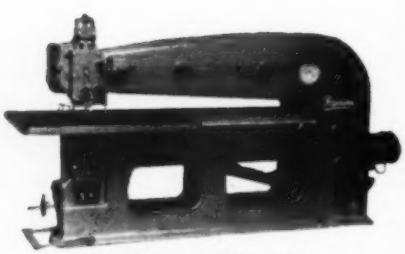


DENNIS JOINTERS

FRANCIS SPREADERS



SOLEM SANDERS



RAIMANN PATCHERS

Also:

HOT PRESSES
SKINNER SAWS
TRIMMER SAWS
BELT SANDERS
CORE SAWS
GLUE MIXERS
TAPING MACHINES

COMPLETE DRY END EQUIPMENT

Plywood Industry in Sweden

By NILS F. NILSSON

The Swedish Plywood Manufacturers' Assn.

The first Swedish plywood factory was built in 1912 but on a larger scale the plywood industry in Sweden started production during the middle of 1920's and has shown a steady growth since that date. The size of the total production in Sweden is naturally limited by the supply of suitable raw material and on that account any further substantial expansion is not likely.

Eight plants, all specializing in the manufacturing of plywood and blockboards, are at present operating with an estimated total capacity of about 60,000 cubic meter, equivalent to about 100 million square feet on a ¼" basis. They are all found in the main timber districts of Sweden and are located at or near good shipping ports. Technically the mills are of the highest standard with regard to manufacturing and the gluing methods.

INTERIOR OF A MODERN Swedish plywood factory. The principal plywood species is Pinus sylvestris, a heavy, straight wood with an interesting grain pattern. Note efficient lighting arrangement, plus the two lathes.

The principal raw material used for plywood production in Sweden is pine-Pinus silvertris, a heavy straight-growing timber with a varied and beautiful pattern. Also birch and imported woods to a smaller extent are used.

About half of the total production of Swedish plywood is normally distributed on the home market for domestic consumption. Balance is exported to various markets, mainly West European, but also to numerous overseas countries.

Statistics for 1952 are not yet available but the export figures for that year for plywood are expected to be lower than 1951 when Sweden exported about 15,000 tons of plywood equal to about 25,000 cubic meter with a total value of 17 million Swedish Crowns.

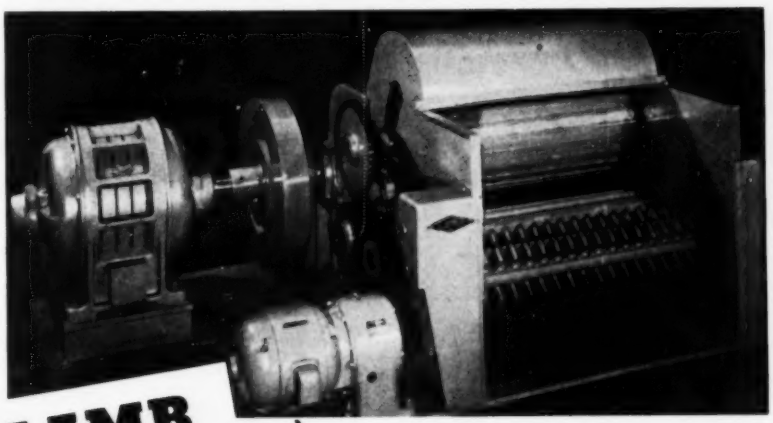
The decline in the exports during 1952 was no doubt due to the general uncertainty with regard to the trend of prices for timber products as a whole that existed during last spring and summer. The reports at the beginning of the present year point to a firmer market position for plywood. The outlook here for the future is, as elsewhere, to a large extent dependent on the general conditions in international trade.

Southern Plywood Plants

(Continued from Page 87)

Thomason Plywood Corp., Fayetteville.
Atlas Plywood Corp., Goldsboro.
Hayworth Roll & Panel Co., High Point.
Peerless Plywood Co., High Point
Hasty Veneer Co, Maxton.
Statesville Plywood & Veneer Co., Statesville.
Southern Box & Lumber Co., Wilmington.
Beck's Plywood Co., Zebulon.

SOUTH CAROLINA — Stilley Plywood Co., Conway.
Darlington Veneer Co., Darlington.
Coastal Manufacturing Co., Denmark.
Wilson-Smith Veneer Co., Dillon.
Carolina Veneer & Plywood Co., Florence.
U. S. Plywood Corp., Orangeburg.
Winnsboro Plywood Co., Winnsboro.



LAMB VENEER HOGS
Standard Equipment in the Plywood and Veneer industry
LAMB

"The above heavy duty high speed ROLL FEED HOG enables feeding at greater speed than with other feed tables giving greater capacity and more uniform distribution of waste throughout the entire mill conveying system.

Maintenance costs are reduced by using the grizzly roll which acts to break up curled veneer trim and allows small bark, gravel and dirt to pass directly into the fuel conveyor without damaging the knives.

LAMB HOGS are available in five sizes, 24-inch to 48-inch width of cutting face, with horizontal or inclined chain or belt feed table, horizontal roll feed, or angle feed by gravity or shaker hopper."

LAMB HOGS have been in service for many years in the plywood and veneer plants of the United States and other countries.

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Let us quote you on the hog most suitable for YOUR requirements.

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LAMB-GRAYS HARBOR CO., INC.
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A NEW TWIST in the veneer realm is Humboldt Plywood Corp.'s new portable mill (see photo above), which is run in conjunction with a portable sawmill in rugged country at Snow Camp, some 20 miles from the company mill at Arcata, Calif.

It is a complete veneer-making operation, specially designed and built in separate units that can be hauled on the highway without special permits. Salvage peeler logs that will make good core stock but which would not otherwise "pay their way to market" are tractor-skidded right to the mill. Production of approximately 15,000 board feet log scale per shift is accomplished by 11 men.

No special base for the mill is needed as the units are mounted on timbers. The separate units, which are (1) barker, (2) Coe lathe, (3) Coe clipper and table, (4) sorting table and (5) a Murphy ME66 diesel generator, are built on steel I-beams that hook together. Overall length is 100 feet. One conveyor through the middle of the mill removes all residue from it and dumps it off-site.

Irvin S. Becker, in charge of maintenance and construction for Humboldt, and Bill Branoman, Eureka Boiler Works & Acme Foundry Co., worked together on the design and construction.

CAUSES OF FIRES ON PROTECTED LANDS (1951)*

	NUMBER OF FIRES									
	Lightning	Railroads	Campers	Smokers	Debris Burning	Incendiary	Lumbering	Misc.	Total	Total Acres Burned
U. S.	7,029	3,250	3,401	18,390	19,588	39,396	2,771	12,038	105,863	3,525,956

*Prepared by AMERICAN FOREST PRODUCTS INDUSTRIES, INC., 1319 18th Street, N. W., Washington 6, D. C.

CURRENT MANUFACTURERS OF "PLYRON",* HARDBOARD FACED PLYWOOD

(List furnished by Douglas Fir Plywood Association, Tacoma, Wash.)

Aberdeen Plywood Corporation, Aberdeen, Washington

Associated Plywood Mills, Inc., Eugene, Oregon

Buffelen Manufacturing Company, Tacoma, Washington

Columbia Veneer Company, 656 Skinner Building, Seattle, Washington

Industrial Plywood Corporation, 25 California St., San Francisco 11, Calif.

Multnomah Plywood Corporation, 1500 S. W. Harbor Drive, Portland, Oregon

Plywood, Inc. (2 mills), Tacoma Washington

Puget Sound Plywood, Inc., Tacoma, Washington

St. Paul & Tacoma Lumber Co., Tacoma, Washington

Simpson Logging Company, 1062 Stuart Building, Seattle, Washington

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Multnomah PLYWOOD Corporation

NOMAH-PLY

MODERN PLYWOOD PLANT, *Portland, Oregon*
GREEN VENEER PLANT, *Glendale, Oregon*
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MEMBER OF DOUGLAS FIR PLYWOOD ASSN.

Modern hot press at the Portland plant

One of the larger producers in the Pacific Northwest of

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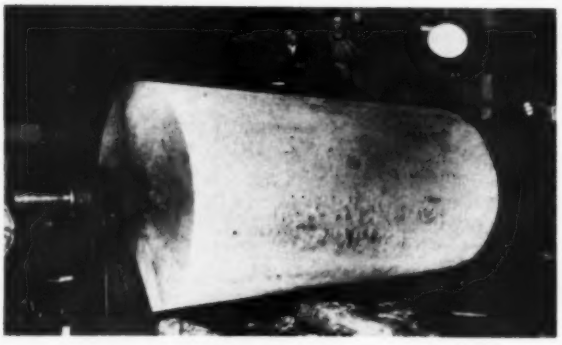
Capacity: 60,000,000-65,000,000 sq. ft. per year



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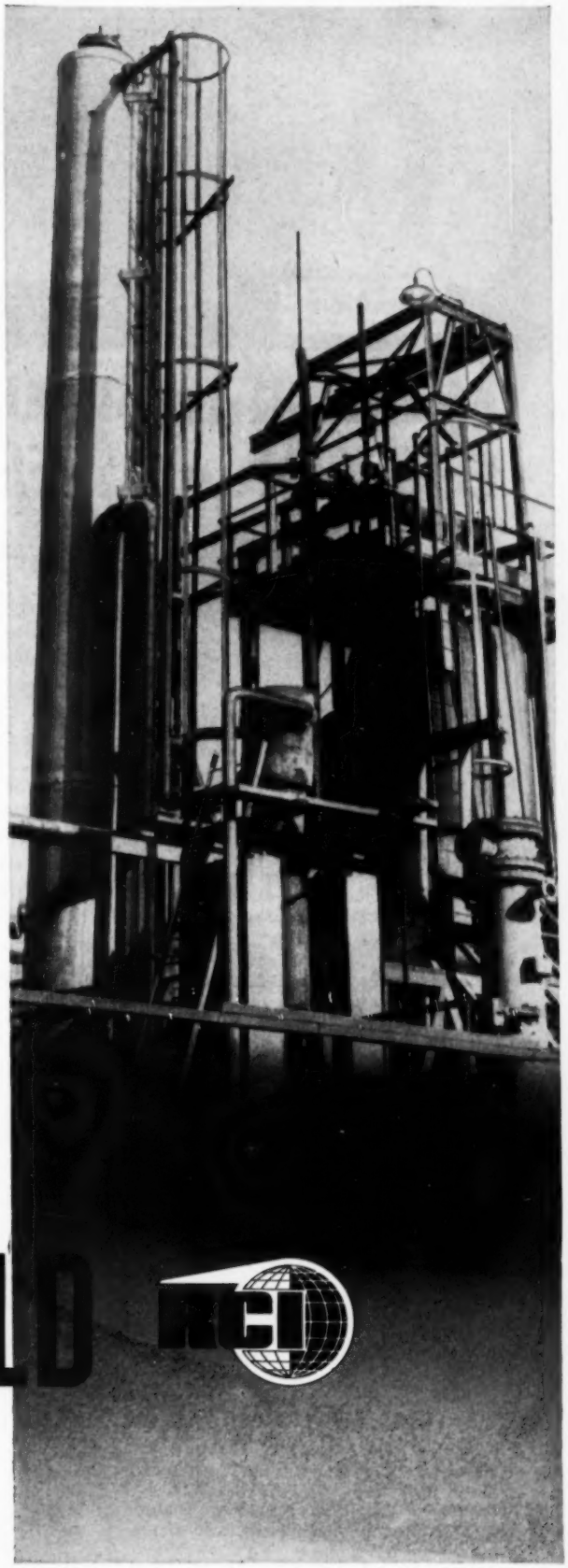
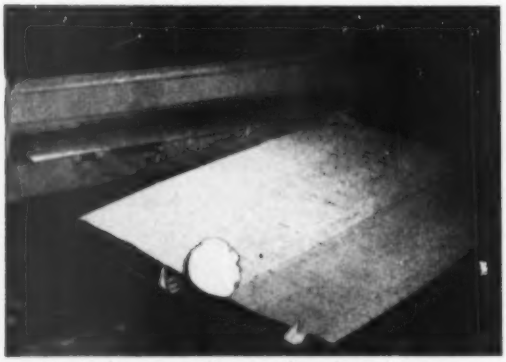


Synthetic Resins • Chemical Colors • Phenolic Plastics • Phenol
Glycerine • Phthalic Anhydride • Maleic Anhydride
Sodium Sulfate • Sodium Sulfite

Mann-Russell Electronic Veneer Edge Gluer *SPEEDS PRODUCTION!*

Infeed end of the Mann-Russell 100-inch Veneer Edge-Gluer. Random-width stock (with glue-edges) is fed onto moving belts by the operator. Belts carry veneer through gluing section (center of top picture) where high frequency bonding takes place, and continuous veneer web emerges (right of top picture).



Typical veneer-clipper placed at the outfeed end of the Mann-Russell Veneer Edge-Gluer. Usually, offbearing rollers feed the continuous veneer web from the gluing section into the clipper. (Clipper and offbearing rollers not provided as a part of the Mann-Russell installation).

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At variable and continuous speeds and in a flat plane, the Mann-Russell Electronic Veneer Edge-Gluer bonds veneers of random widths, soft or hard woods, core or face stock, sliced or peeled in thicknesses down to 1/20th inch. Standard sizes are for panels of 4, 8, or 10-ft., net trim. Models also available in special sizes.

These machines are the result of long years of research and development in the field of electronics, as applied to industry. Mann-Russell Veneer and Lumber Edge-Gluers are successfully speeding up production in plants throughout the United States and Canada.

These are the Big Features:

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- **Perfect edge-register of joints in continuous production.**
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- **Flat-plane eliminates internal stress while gluing.**
- **Generator and press sold as package unit; one responsibility.**
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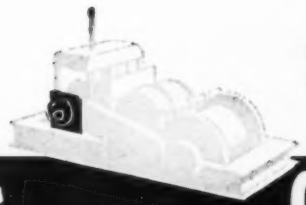

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GROWING USES OF HARDBOARD depicted in home of Ralph Chapman at Corvallis, Ore. He developed his own hardboard production process, built and operated Chapman Manufacturing Co., first Pacific Northwest hardboard plant. In this home hardboard was extensively used—all exterior siding, shingles, gable-ends, interior wallboard; regular doors are flush type, the surface sheets and interior rib construction of hardboard; corrugated hardboard used for garage doors and some interior ornamental finish; in corrugated form between gravel fill and concrete slab floors to create air-cell insulation for floors; porch columns are of hardboard mold-fitted oover wood core.

HARDBOARD—

WHAT PROCESS SHALL I USE?

By H. R. EVANS

Executive Director

Plywood Research Foundation

Tacoma, Wash.

Hardboard, until the last few years, has been synonymous with the product of one manufacturer. Developments in recent years have resulted in new methods of manufacturing a densified product from wood fibers and wood particles, in an effort to bring about full utilization of our timber resources. Up to the present time most of the work has resulted in better utilization of the log at the mill or plywood plant through the use of slabs, veneer trims, cores, etc. As this supply is utilized the next step will be utilization of woods leftovers.

Each and every processor of forest products should strike the word "waste" from his vocabulary and think in terms of the raw material he has in stock for production of allied products such as hardboard, which we will discuss in this article.

THE VARIOUS PROCESSES

WET

Bark free slabs, edgings, veneer trims or cores are passed through a standard chipper, screened and conveyed to storage. Chips are drawn from the storage bins and conveyed to the steam cookers. The cooking equipment may be either

H. R. EVANS

rotary or stationary digesters, or continuous cookers. After a predetermined time in the cooker at pressures from 25 p.s.i. to 200 p.s.i., the chips are discharged and conveyed to the defiberizers or refiners. The exception to the above is in the Masonite Process where the chips are exploded in the "Masonite Gun" which operates under pressures in the 1000 p.s.i. range.

From the defiberizers or refiners the fibers are conveyed by water to the stock chests in the form of a slurry with a consistency of 3% or less. As the slurry is agitated any additive such as resin, rosin or wax size is added. The effect of the resin is to supplement the bonding of the fibers in the final board. The wax size or rosin acts as a water repellent thus effectively controlling the dimensional stability of the board. It is general practice to control the pH of the slurry in the stock chest by the addition of alum or dilute sulphuric acid, or a combination of the two, to precipitate the additive on the fiber.

The slurry is pumped to a head box where the flow of stock onto the wire of the forming machine is controlled to attain a mat of uniform thickness and density. When the mat leaves the press sections of the forming machine it contains about 200% water and is cut to length by a flying saw. The cut mats are

moved by conveyor to a press loading rack.

An alternate method known as the "Batch Method" is sometimes used where the slurry is pumped into a deckle box and individual mats are formed. After the free water is drained through the screen on the bottom, the mat is subjected to a de-watering press before advancing to the hot press.

After the multi-deck loading rack is filled, the mats are automatically moved into the hot press with a smooth caul on one side and a screen on the other. The consolidation of the board will take place at pressures up to 1000 p.s.i. The screen on one side provides drainage of the excess water and escape for the steam.

At the end of the pressing cycle the boards are discharged into unloading racks. From the unloading racks the boards are fed into a humidifier where the nearly bone-dry boards are humidified to a moisture content of 5 to 8%. This humidification is very essential to provide a stable, warp-free product. After humidification the boards are trimmed to size and packaged for shipment.

For special uses some boards are given a treatment prior to humidification. This treatment consists, for example, of either a heat treatment by baking at 250° to 350°F. for a four hour period; or, by first treating with a vegetable oil and then baking. Both the strength and water resistance of the boards are improved by this treating or tempering.

Another alternate method is to take the cut mats as they come from the flying saw and feed them into a roller type dryer and dry them to a moisture content of 2 to 3% before loading them into the hot press. In this pressing operation no screen is used so the finished board is smooth on both sides. Higher pressures are required in pressing this type of board.

SEMI-DRY PROCESS

In the semi-dry process, as developed by the Plywood Research Foundation, the chips are prepared in the same manner as in the wet process and steamed in a continuous cooker for 5 to 8 minutes before being fed to the defiberizers. A small amount of wax size is added to the chips as they advance through the cooker. No water is added during the defiberizing.

As the fiber leaves the defiberizers it is picked up in an air stream, which in some cases is heated to lower the moisture content, and carried to the blender where the resin is added. On being discharged from the blender the fiber is again picked up in an air stream and conveyed to the felter. This forming machine lays the fiber down in a uniform mat on a continuous belt. The moisture content of the mat is from 10 to 50% oven-dry basis. The mat proceeds through a precompressor before being cut into the desired lengths for pressing. Pressing, humidification and packaging are the same as in the wet process.

DRY PROCESS

When fibrous hardboards are made in a process where the mats contain less than 10% moisture at time of pressing, the process is generally referred to as a dry process. Larger amounts of resin are required as some of the plasticizing effect of the water is lost.

PARTICLE BOARDS

Several types of particle boards are being produced throughout the United States today. They range from a coarse, low density core board to a very hard, high density board. The usual procedure is to have the particles of a somewhat uniform size and, after drying to a low moisture content, add the binder which usually is done in batch mixers of the ribbon type. In the core type boards the particles will be in the form of chips or shavings. The higher density boards generally start with sawdust which is some times further reduced in a hammermill for uniformity. Particle boards require more resin or other binder than do the fiber boards, with the small particles requiring even greater amounts of binder than the coarse due to the large areas to be coated.

SUMMARY

It is a mistake to say that any one process or any one type of board is better than the rest. Many items should be taken into consideration by management before deciding on a process for making hardboard.

1. Availability and type of raw material.
2. Available fresh water supply.
3. Disposal of contaminated water.
4. If the answer to 2 and 3 is negative, consider semi-dry or dry process.
5. If bulk of raw material is in form of sawdust or other small leftovers, consider particle type boards.
6. Give consideration not only to capital investment required but also the manufacturing cost. In general, a process requiring the least amount of capital investment will result in higher production costs. Hardboard is becoming a competitive product.
7. Last but not least, make a thorough investigation of your market potential. While the problems to be met in the manufacture of hardboard will be many and complex, they will quickly recede to the background as distribution and sales problems arise when the product is ready to be marketed. This potential market will dictate the type of hardboard you will manufacture and therefore be a weighing factor in your decision on "What Process Shall I Use."

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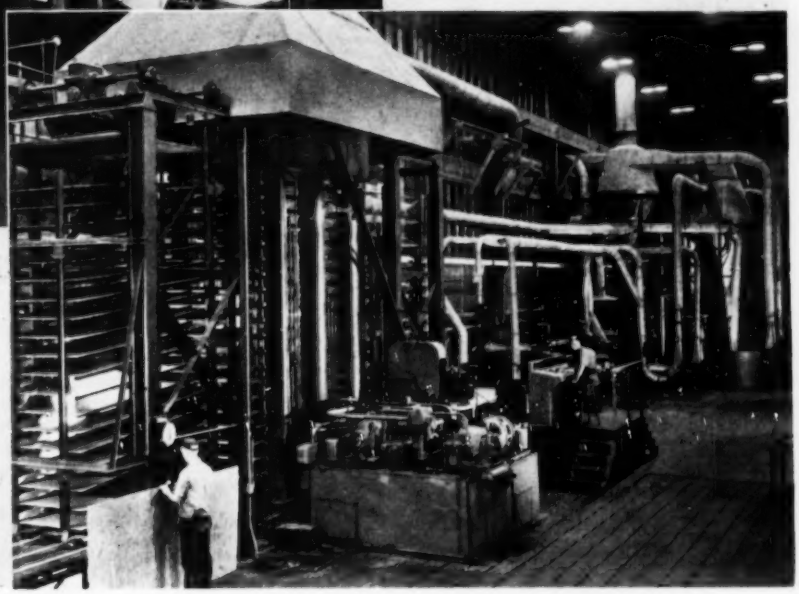

These operations at Anacortes Veneer, Inc. were duplicated by our Western Division Hardboard laboratory section in laboratory form. Our efforts and continuous research are a service to Anacortes Veneer, Inc.—as well as all our customers—dedicated to the improvement of their products. ▶

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N. AMERICAN HARDBOARD PLANTS, PRODUCTS, OUTPUT

Firm Name	Plant Location	Production Capacity*	Products, Processes and Other Details
Abitibi Power & Paper Co.	Sturgeon Falls, Ontario, Canada	3,640,000 sq. ft. per month	Hardboard.
Anacortes Veneer, Inc.	Anacortes, Wash.	2,500,000 sq. ft. per month	"Armorbord" hardboard. Semi-dry process.
Canadian Forest Products Ltd., Pacific Veneer Div.	New Westminster, B. C.	1,950,000 sq. ft. ¼" basis per month ('52 av.)	Hardboard. Chapman process. Weatherproof tempered hardboard developed experimentally.
Cascade Plywood Inc.[1]	Lebanon, Ore.		"Lebanite" hardboard. Dry process.
Chapman Mfg. Co.	Corvallis, Ore.	1,950,000 sq. ft. per month	"Oregonbord." "Chapman" process (wet-batch).
Coos Bay Lumber Co.	Coos Bay, Ore.	100-150 tons per 24 hours	Hardboard. Semi-dry process.
Fibracel SA de C. V. Cinbad Velles	San Luis Potosi, Mexico	3,120,000 sq. ft. per month	Hardboard—trade name of FIBRACEL & DURO; oil-tempered board—FIBRACEL, EXTRADURO.
Forest Fiber Products Co.	Forest Grove, Ore.	5,200,000 sq. ft. per month rated capacity	"Forest Hardboard;" Forest Tee-N-Gee Panels. FORON (exterior type). Wet process.
Long-Bell Lumber Co. (Pilot plant operation only)	Longview, Wash.	Limited production	Hardboard. Dry process, under development. Full-scale production undetermined at present time.
Masonite Co. of Canada Ltd. (Subs. of Canadian International Paper Co.)	Gatineau, Quebec, Canada	3,250,000 sq. ft. per month	"Masonite" line of products: Presdwood, Tempered Presdwood, Black tempered Presdwood, Presdwood temprtile, Quarterboard, Leatherwood, Tempered Flooring. Masonite process.
Masonite Corporation	Laurel, Miss.	56,900,000 sq. ft. per month	"Masonite" line. Masonite process.
Masonite Corporation	Ukiah, Calif.	31,590,000 sq. ft. per month	"Masonite." Masonite process.
Oregon Fibre Products, Inc.[2]	Pilot Rock, Ore.	6,600,00 sq. ft. per month (estimated production at full operation)	Both softboard and hardboard. Chipping plant now producing chips which are shipped to a pulpmill.
Oregon Lumber Co.	Dee, Ore.	4,680,000 sq. ft. per month	"Allwood" hardboard, including Standard, Hardtemp, Black Hardtemp and Hardlite. Wet process.
Rock Island Millwork Co.	Rock Island, Ill.		"Resinwood." Using wood granules and chips with phenolic resins.
Shasta Plywood, Inc.	Redding, Calif.	30,000,000 sq. ft. ⅜" basis annual, estimated capacity	"Novoply." Finishes: redwood and light-finish fir or pine. Swiss process (Fred Fahrni inventor) using wood slivers and shavings.
Superior Wood Products Co.	Duluth, Minn.	1,950,000 sq. ft. per month	"Superwood" hardboard. Modified Chapman process.
Trafalgar Mills, Ltd.	South Nelson, New Brunswick, Canada	1,804,000 sq. ft. per month	Hardboard. "Plaswood" process.
U. S. Gypsum Co.	Greenville, Miss.	6,500,000 sq. ft. per month	"Duron." U. S. Gypsum "dry" process.
Versatile Products, Inc.	Anacortes, Wash.		Dry process. Operation of this plant has not been continuous.
Washington Hardboard Products, Inc.[3]	South Bend, Wash.		Hardboard. "Semi-dry" process.
Weyerhaeuser Timber Co. (pilot plant)	Longview, Wash.		Hardboard. Semi-dry process.
Weyerhaeuser Timber Co.[4]	Klamath Falls, Ore.	7,500,000 sq. ft. per month, approximate scheduled capacity	Hardboard, including decorative, underlayment, industrial & moldable types. Much raw material to come from white fir of low or no commercial value.
Willamette Fibre Board, Inc.[5]	Sweet Home, Ore.	2,340,000 sq. ft. per month	Hardboard.

*Unless otherwise stated, square footage is on a ⅛" basis.
[1]Under development.
[2]Under construction.
[3]Under development; plan to begin production summer '53.
[4]Scheduled for completion, fall, '53.
[5]Under development.

NOTE ON PRODUCTION AND CAPACITY: Because the manufacture and grading of hardboard have not been standardized, there are several different methods by which the output is measured. The most popular method of reporting is square feet per 24-hour day on a ⅛-inch basis. The production of the majority of the plants listed above has been extended to a monthly basis for a simplified comparison, using the industry average of 26 working days per month. The production or capacity as stated for each plant are not necessarily the amounts of hardwood actually produced; the actual production figures are confidential company property and no attempt has been made to disclose them.

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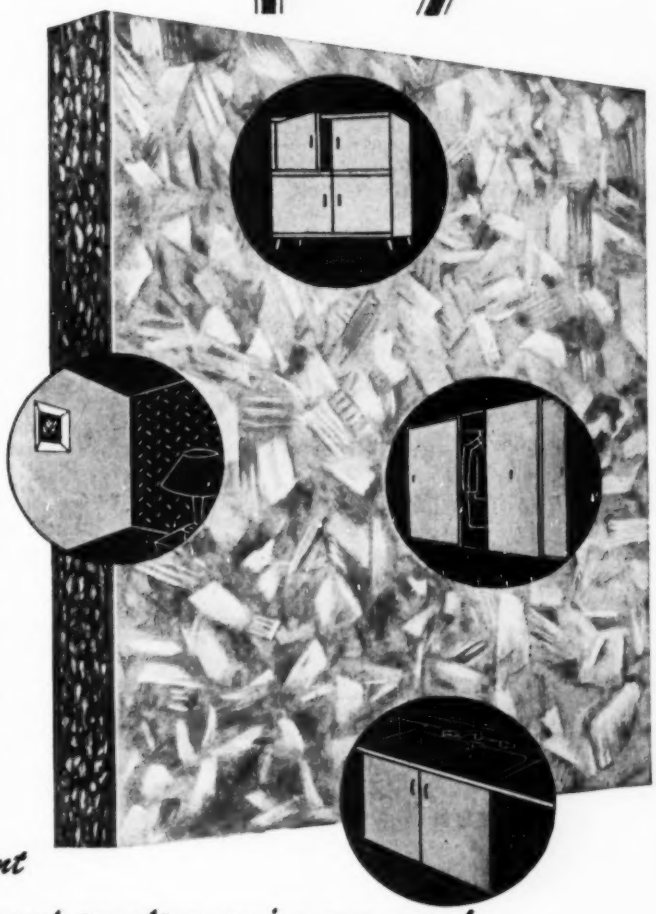
*T. M. Reg. Patented: Other patents pending



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Utilization of—

DOUGLAS FIR BRANCHWOOD IN HARDBOARD

ARTHUR B. ANDERSON* and WILLIAM J. RUNCKEL

Oregon Lumber Company Research Laboratory, Portland, Oregon

To aid in alleviating the slash disposal problem, the Oregon Lumber Company investigated the possible utilization of logging slash as a suitable raw material for hardboard. This report considers the use of Douglas fir branchwood, including the bark without twigs or needles to make hardboard.

In the commercial production of wood fiber products, branchwood has appeared unsatisfactory because it was believed impractical to remove the bark. The reasons given for not using bark in fiberboard compositions are (1) when bark is incorporated with wood, the resulting pulps are not suitable for wet lap forming machines because of the slowness of the pulps so produced, and (2) the presence of bark weakens the board below acceptable standards. However, the following experiments have proved that the Anderson-Lighthall Process, which incorporates the bark, produces a highly satisfactory board on conventional equipment meeting commercial specifications.

EXPERIMENTAL PROCEDURE:

Preparation of Pulps

The Douglas fir branchwood used in these tests was from second growth material and averaged 2 inches or more in diameter. The twigs and needles were removed and discarded. The branchwood was put through a laboratory chipper. The resulting heterogeneous chips were put through a small hammermill containing a perforated plate screen with 1" holes. The chips, so prepared, were used to make hardboard. Debarked Douglas fir slabwood was chipped in similar manner for preparing straight wood hardboard.

Sufficient branchwood chips were weighed out to make from six to twelve ¼"x12"x12" hardboards. This required from 9 to 18 pounds of dry material for each experimental run. Prior to defiberization in an Asplund laboratory defibrator, warm water was added to the chips. A preheating chamber consisting of a vertical stainless pipe (3" ID x 12") was connected to the defibrating chamber by a 2½" stainless steel pipe with a quick-opening valve. A charge equivalent to approximately 300 grams of dry material was placed in the preheater and the chamber closed by a screw cap. The chips were presteamed for five minutes. Then the defibrator motor was started and the chips were discharged into the defibrator chamber through the quick-opening valve. Steam was admitted into the defibrator chamber. The charge was held for one minute, after which it was blown through a ¾" line into a cyclone, where the coarse fibers were collected.

The defiberized material was then pulped in an 8" Bauer laboratory disc mill, using #6946 plates at various plate clearances, to produce pulps of desired freeness. While the coarse fiber was being pulped, a small stream of water 70°-90° F) was continually fed to the mill. Oliver freeness was determined on the stock at this stage. The most suitable stock for commercial board-forming machines should have an Oliver freeness between 35 and 60 seconds. No difficulties were encountered in preparing branchwood pulps with freenesses within these limits.

Preparation of Hardboard

The pulp from each run was divided into 6 to 12 parts according to the number of ¼" boards to be prepared. Each pulp portion was dispersed in water (consistency about 6%) and transferred to a forming box (12"x12") with facing screen of 14x14 mesh .025" wire). The pulp was stirred lightly and the water allowed to drain through a quick-opening valve. Then the valve was closed and vacuum was applied to remove additional water. The wet mat was removed, put between screens plus stainless steel cauls (13"x13"), and placed in a 42-ton capacity hydraulic press 12"x12" with platens at room temperature. The wet lap was submitted to 500 psi for 2 minutes. This resulted in a dewatered mat containing 50% solids (± 2%).

The prepared mat was transferred to the hot press. The platens of the hot press had been electrically preheated to a temperature of 375°F or 410°F. The temperature was con-

*Present address: University of California, 243 Forestry Building, Berkeley, California

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trolled automatically. The platen pressure was raised to the maximum and maintained for a short time. The pressure was then slowly released to permit any entrapped steam to escape. This breathing cycle was maintained for several minutes. The pressure was then increased and maintained for the time required to produce a satisfactory board.

1. Effect of Branchwood on Board Properties

Enough branchwood chips were processed into pulp, as previously described, to make twelve ¼"x12"x 12" hardboards. The pulp yield was 87%, while the Oliver freeness was 34 seconds. Six boards were prepared without sizing agent; the other six boards were prepared with ½% rosin size plus ½% papermakers' alum (based on dry weight of board). Results are as follows: (See Table I).

Table I

375°F. Platen Temperature

Size	Spec. Grav.	Caliper	Absorption	Swelling	Modulus of Rupture
%		ins.	(a) %, (b)	(a) % (b)	psi
0	0.947	.241	20.7 20.3	10.0 15.3	4780
½	0.968	.235	9.9 13.8	8.1 10.6	4610
		410°F. Platen Temperature			
0	0.990	.235	12.4 16.8	7.7 10.1	4900
½	1.015	.231	9.0 11.5	5.2 6.1	4630

Table II

375°F. Platen Temperature

Size	Spec. Grav.	Caliper	Absorption	Swelling	Modulus
%		ins.	(a) % (b)	(a) % (b)	psi
0	0.980	2.39	65.4 60.5	39.3 46.3	6623
1	0.990	.234	11.2 14.8	9.1 14.2	4920
2	1.010	.236	10.2 12.8	8.5 12.1	4617
		410°F. Platen Temperature			
0	0.990	.229	58.8 55.7	29.8 30.0	7467
1	1.032	.221	9.7 11.0	8.5 9.0	5647
2	1.041	.232	8.3 9.9	7.1 8.0	5065

It is of particular significance to note from these data that Douglas fir branchwood hardboards have relatively low water absorptions, even without sizing agent. Increased platen temperature appears to lower water absorption and give greater dimensional stability. The addition of as little as ½% sizing agent produced boards with lowered board absorption values and satisfactory strength values.

2. 100% Douglas Fir Wood Hardboard

The best pulping conditions found for branchwood boards in the present investigation (five minutes preheating of chips processed through the Asplund defibrator, followed by pulping through the Bauer mill) were repeated using 100% Douglas fir bark-free wood. Boards were prepared to compare with the branchwood boards prepared and tested under similar conditions. Results are as follows: (See Table II).

The results obtained by these tests on 100% Douglas fir wood hardboard indicate that Douglas fir branchwood is no deterent for producing hardboard with acceptable properties. Results indicate that branchwood boards can be produced which have strengths comparable to all wood fiber sized boards and that they will have similar water adsorption. Further, branchwood boards appear to require only ¼ to ½ as much sizing agent as do straight wood fiber boards having comparable water absorption and dimensional stability values. (See Table I). Thus the chemical costs in this Douglas fir branchwood hardboard process are expected to be substantially lower than those of present commercially used hardboard processes.

3. Properties of some commercially available hardboards made by various companies were obtained and physical properties determined by using the same testing methods as used here. The comparative properties of three such type boards are recorded in Table III:

From the experimental studies reported here, it is indicated that the properties of hardboards containing Douglas fir branchwood compare with those of the commercially produced hardboards tested. It is realized that laboratory scale runs give only indications of what might be expected on commercial scale production. However, some of the laboratory results obtained have been confirmed by semi-commercial test runs. Therefore, no serious difficulties are anticipated for the large scale production of hardboard using Douglas fir branchwood.

Economic Advantages of Branchwood Hardboard Process

Several distinct economic factors appear to be favorable to the branchwood hardboard process. These are:

(Continued on Page 139)

PONDEROSA PINE

WHITE FIR INCENSE CEDAR

High Altitude, Soft Textured Growth

Modern Moore Designed Dry Kilns

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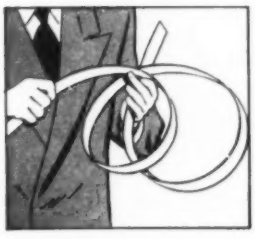
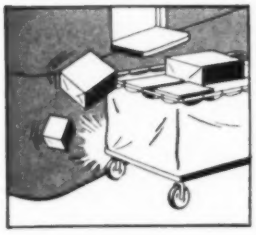


UNUSUAL FLEXIBILITY

A narrow strip can be bent like a hatband! This great flexibility combined with great strength and durability opens new fields to designers and fabricators or displays, toys, furniture.



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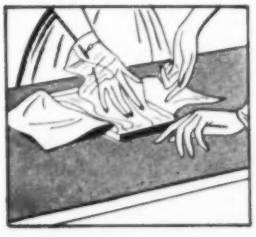
ARMORBORD stands up under the toughest treatment. Shrugs off hard blows. Simple framing makes ARMORBORD amply rigid for paneling, built-ins.



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New Low Cost Hardboard Made By Unique "Semi-Dry" Process Combines Strength, Flexibility, and Dimensional Stability

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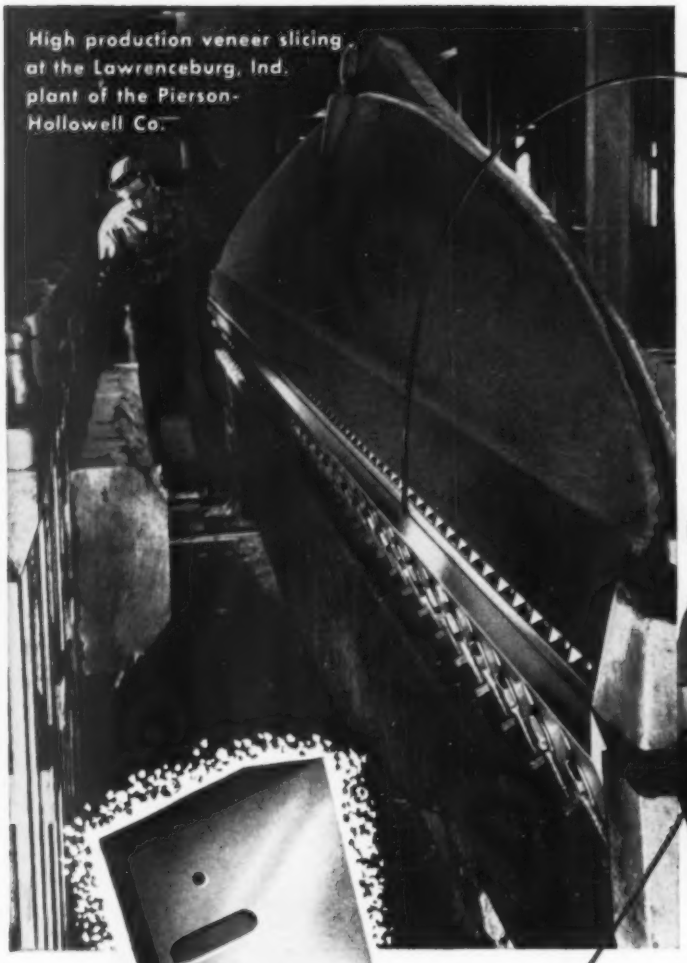

High production veneer slicing at the Lawrenceburg, Ind. plant of the Pierson-Hollowell Co.

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OK Knives are made to your specifications. Thicknesses are held to tolerances and parallelism of ± .001. Made of finest alloy steel. OK Veneer Knives—used by more mills than any other knife made.

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DISTRIBUTION AND MARKETING OF HARDBOARD POSE TOUGH PROBLEMS FOR NEW PRODUCERS

Western hardboard manufacturers have rather extensively saturated their normal "near at home" market. To place Pacific Coast hardboard in the midwest, where "the big market begins," costs from $9 to $10 per 1000 square feet for ⅛ in. board and around $14 per 1000 for quarter inch. In that distant market area, and at points farther east, the western board encounters strong competition from the Mississippi and Minnesota hardboard producers which enjoy considerably lower freight costs.

Hardboard has almost entirely been an industrial item, the market bulk taken by industrial fabricators and other industrial operators, the former making up the biggest hardboard market. For such usage hardboard is purchased in carload lots. Some large manufacturers, particularly in furniture line, also purchase hardboard in bulk carload lots and do their own fabrication. Other such firms buy their hardboard in cut-to-size form from fabricators—a practice which hardboard manufacturers say appears to be increasing.

Hardboard Distribution Separate

Pacific Northwest manufacturers occupy a relatively rough market situation as there are no large industrial users or fabricators in the region. The large West Coast fabricators are located in California—Los Angeles and San Francisco.

Distribution and marketing have proven more of a problem than most new manufacturers of hardboard anticipated. At least one producer, having been in lumber manufacturing business for some years, built a hardboard plant assuming that the manufactured product could be readily marketed and distributed along with the lumber. This plan was not as successful as anticipated so the organization has undertaken to distribute, market and advertise its hardboard by brand name and has incorporated particular properties into specialty panels to meet the needs for specific industrial uses. Some fabrication has been carried on at western producer plants, thus making the product more suitable for industrial users—particularly the small industrial plant.

"Have Market Lined Up"

The hardboard field has featured brand name promotion and sales and has been characterized by consistently moderate prices. The man-

(*Continued on Page 144*)

Douglas Fir Branchwood

(*Continued from Page 136*)

1. **Raw Material.** A satisfactory hardboard can be produced from Douglas fir branchwood without removing the bark. Collecting branchwood from the woods for processing into hardwood reduces the fire hazards involved in the disposition of logging slash and results in better forest management. The potential profit in branchwood utilization for hardboard manufacture will vary with the market value of bark-free wood chips required for previous hardboard processes.[1] The cost of collecting and transporting the branches will be variable and has not been determined. But there appears to be a potential profit of several dollars for each ton of wood processed.

2. **Chemicals.** In commercial hardboard processes certain percentages of sizing agent, such as rosin or wax together with alum or mineral acids, are required to make the finished hardboard resistant to water absorption and subsequent swelling. When Douglas fir branchwood is used, 50% or less sizing agent is required to produce a satisfactory hardboard. The economic advantage of this phase of the branchwood hardboard process will depend on the chemical costs involved in the hardboard processes now being used. Chemical costs for manufacturing hardboard vary from $2 to $8 or more per 1000 sq. ft. of ¼" hardboard.

3. **Water.** Less water will be required in this new process since branchwood pulp consistencies of 5% to 6% appear suitable for board formation. Present wet wood fiber processes require 1% to 2% pulp consistency.

Summary

It has been demonstrated that Douglas fir branchwood is a suitable raw material for making a satisfactory hardboard. This use of branchwood appears to be an attractive outlet for the utilization of logging slash waste in the Douglas fir region. This branchwood hardboard process reduces processing cost because (1) raw material is cheap and readily available, and (2) this process requires less chemicals than present processes. (3) The process can be ued in any conventional wet hardboard process.

The process developed and described is covered by patent claims designed to protect the interest of the sponsors of this research program. However, the process is available to the industry on a modest royalty basis. The Blaw-Knox Construction Company, Pittsburgh, Pennsylvania are exclusive licensing agents for this branchwood process.

Acknowledgment

The authors are grateful for the assistance and suggestions given by Mr. A. C. Lighthall, Mr. Floyd Carpenter, and Mr. Newell Wright of the Oregon Lumber Company and Mr. Charles F. Hauck of the Blaw-Knox Company. And the authors wish to thank each of these companies for permission to publish the results of this investigation.

Literature Cited

1. Anderson, Arthur B. and Runckel, William J., Forest Products Research Society Proceedings, Portland, Oregon, June 28, 1950 Vol. IV, pp. 301-308.

Table III

Commercial Hardboard	Caliper ins.	Spec. Grav.	Water (a)	Absorption % (b)	Swelling (a)	Swelling % (b)	Modulus psi
A-1	.254	0.915	8.4	14.2	8.3	6.7	4040
A-2	.253	0.925	8.4	13.8	7.9	7.2	4008
A-3	.246	0.927	9.0	12.8	6.5	8.6	4500
B-1	.254	0.940	12.6	17.4	14.1	12.2	4160
B-2	.251	0.965	11.1	16.1	14.0	13.5	4070
B-3	.249	0.945	10.6	19.0	12.8	17.6	4840
C-1	.276	0.995	4.3	8.0	5.5	7.7	3690
C-2	.272	0.990	4.0	7.7	5.2	7.4	4315
C-3	.210	0.875	11.2	17.3	7.2	7.8	2930

Hardboard Horizons Broadened By Three Resourceful L. A. Firms

There are three firms in Los Angeles actively engaged in custom hardboard fabricating, and they represent the increased use of this versatile wood product in fabrication ranging from drawer bottoms to television cabinets.

Nutone, Inc., whose fabrications include window valances, displays, light troughs, counters, partitions, t.v. backs, etc., uses U. S. Gypsum hardboard (Duron) and receives it in sheets of 48x144 and 48x192, in standard thickness of 1/10, 1/8, 3/16, 1/4, 5/16.

The history of Nutone's entrance in the hardboard fabrication field is an interesting one. The Los Angeles office is a wholly owned subsidiary of Nutone, Inc., manufacturers of door chimes. During World War II, when there was no metal from which to make rural mail boxes, Sears & Roebuck called upon Nutone to develop a substitute. This they did, using hardboard and painting the boxes with aluminum paint in such a way they could not be distinguished from their metal predecessors.

Machinery used by Nutone in working hardboard, which is under the management of J. E. Cummings, includes standard wood-working machinery, punch presses, bending machines, gang rip saws, straight line rip saws, table saws, routers, shapers, cut-off saws, swing saws, band saws and high frequency wood-welding machines. At Nutone's new plant near the Los Angeles airport there will be installed a new Mereen-Johnson gang rip, 16-blade. Electric heat is used for bending the hardboard.

LEFT—T. G. WARD, who recently became general manager of the new company, Coos Bay Hardboard Fabricators, Inc. in Los Angeles. RIGHT—H. A. HOLTGEN, vice president and general manager of Pacific Board Fabricators, making some 200 hardboard TV cabinets per day.

Mr. Cummings reports that in addition to many existing custom-made hardboard fabrications, he is discovering from two to three new applications each month, such as bed trays, garbage cans (step-on variety), ship parts, house trailer sections, household specialties, perforated store displays, mirror backs, traffic signs.

Wetting Allows Bending

Nutone specializes in its formed panels and in special bends for custom order, 1/10 and ⅛", with bends available in 1½", 2" and 3" radii. Eight to 12-foot lengths, ⅛" thick, can be bent for counters, store fixtures, displays, exhibits, etc., without preliminary preparation. Smaller radii can be achieved by first wetting the area of the board to be curved. Handy or Ladon bending machines are customarily used in this process.

An interesting sidelight in the hardboard fabrication industry is the problem of overcoming consumer resistance to the use of hardboard for drawer bottoms, a reaction caused by mistakenly identifying hardboard with paperboard. The use of hardboard for drawer bottoms is considered one of the most logical in the business, and gradually the initial reaction and confusion in the buyer's mind are being eliminated. Conversely, during the war, hardboard was mis-used by necessity in attempting to replace certain steel parts.

New Concern Started

One of the most experienced men in hardboard fabrication, T. G. Ward, recently became general manager of the new company, Coos Bay Hardboard Fabricators, Inc., in Los Angeles. The Coos Bay Lumber Company is financially interested in this new concern, which is currently fabricating from Masonite hardboard. Personnel in the new company have all had 10 or more years experience in hardboard fabrication —including Ben Herman, superintendent.

The company has created some especially fine articles from the embossed Presswood, with colors added on custom order: desks, racks, trays, furniture, trailer interiors, etc.

Pacific Board Fabricators, whose vice-president and general manager

HANDY, COMPACT hobby shop constructed from Masonite hardboard by Coos Bay Fabricators. Note the "peg board" panel on the left inside shop wall. This type board, which serves many useful purposes is made by perforating machine.

TV AND FURNITURE MARKETS PROVIDE BIG OUTLET

is H. A. Holtgen, fabricates from Masonite and Simpson "Allwood" hardboard. Big project for this company is turning out some 200 TV cabinets a day for Hoffman and Packard-Bell.

Pacific receives hardboard in 4x8's, 4x10's, 4x12's, 4x14's and 4x16's and in thickness of 1/8, 3/16, 1/4, 5/16s and die stock in any thickness to four inches.

Grains Reproduced

In the fabrication of TV cabinets, 1/8" is used with thicker pieces for fronts and bottoms. One of the most interesting phases in the fabrication of these cabinets is the process which "grains" the hardboard to look like mahogany, oak or what-have-you. A Reeves graining machine is used here. First there is a base coat, then a color coat and then comes the graining by Reeves.

In the manufacture of the cabinets, small pieces of wood reinforcement are used. The bottom section consists of four parts wood blocks; the back frame, 5; the outside "wrap" is all hardboard; the cabinet front of two sections of hardboard uses six blocks; inside the cabinet are 18 glue blocks.

A BEAUTIFUL PIECE OF FURNITURE, fabricated from "grained" hardboard with a wood frame by the Sierra Furniture Co. of Pasadena, Calif. Nutone, Inc. supplied the "Duron" board.

In the 60,000 square feet of working and warehouse space, Pacific produces in addition to TV cabinets, card tables, restaurant table tops, easels, clipboards, toy boxes, clothes hampers, moldings, cocktail table-

Peoria Malleable Iron Castings are used for vital parts of this Allis-Chalmers AD Grader building a logging road in Oregon.
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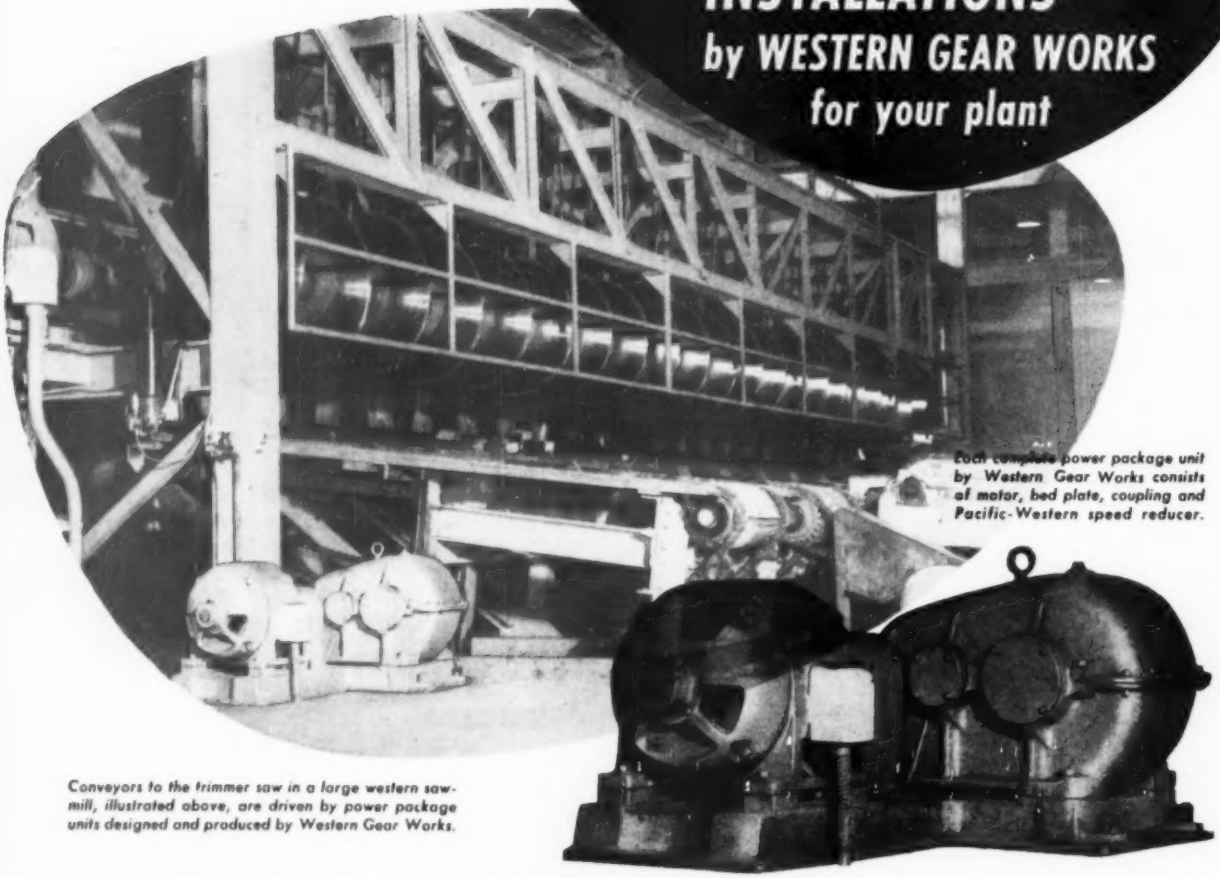

Conveyors to the trimmer saw in a large western sawmill, illustrated above, are driven by power package units designed and produced by Western Gear Works.

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1 You save time by issuing one order to a single supplier for the complete power package unit for the job. There's no need for separate purchases of individual items with varying delivery dates from several suppliers. Single responsibility is assured when you call on Western Gear Works for your requirements.

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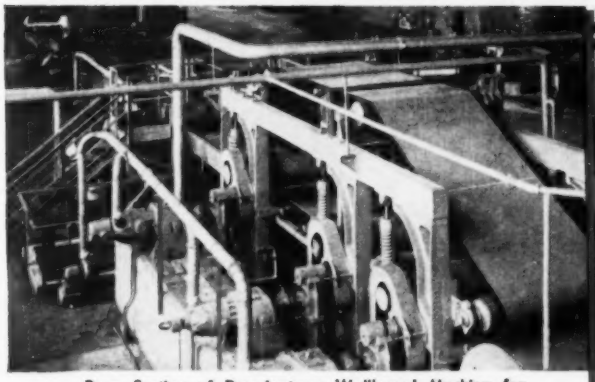
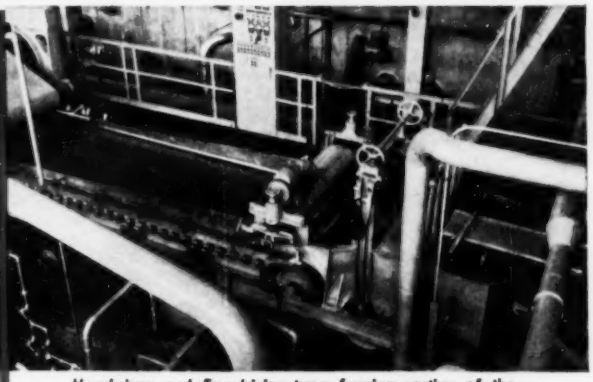
THE KEY THAT ELIMINATES "WASTE" OF BY-PRODUCTS OF LUMBER PRODUCTION

Downingtown Wallboard Machines

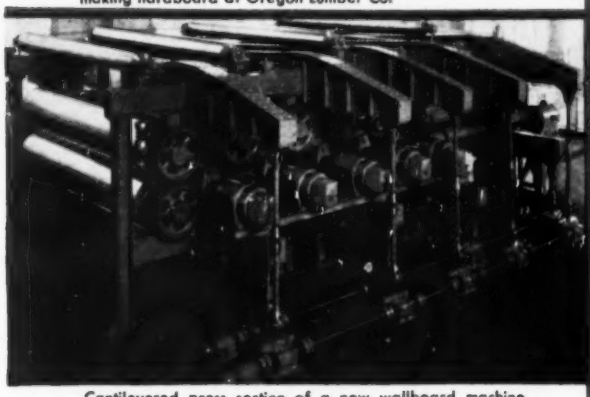
FOR HARDBOARD AND INSULATING BOARD



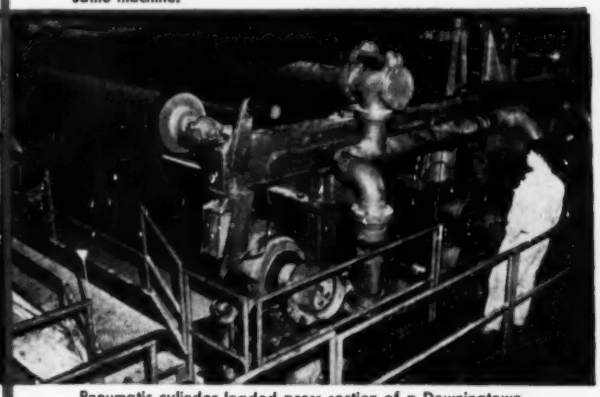
Press Section of Downingtown Wallboard Machine for making hardboard at Oregon Lumber Co.



Head box and Fourdrinier type forming section of the same machine.



Cantilevered press section of a new wallboard machine making either hard or insulating board.



Pneumatic cylinder loaded press section of a Downingtown Wallboard Machine showing two suction press rolls.

A number of new processes have been recently developed which utilize what were formerly "waste" wood products in the production of valuable hardboard and insulating board for the building industry.

An important part of the process is performed by Downingtown Wallboard Machines, consisting of a forming and press section, continuously producing a wet mat to close tolerances.

Be sure to consult a Downingtown Sales Engineer about wallboard production. Or write for Bulletin No. 549.

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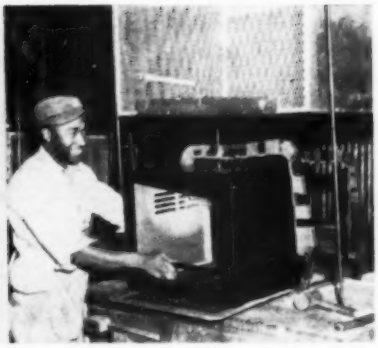
A Wales press works on hardboard to make patterns such as that shown here, at the Hutono factory, where a great variety of hardboard products are made.

Carl Newton, right, foreman for Pacific Board Fabricators, displays one of the chair mats for use under office desks after removal from the Stanley router.



A grained TV cabinet emerges from the Pico high-frequency wood welder after approximately a minute's banding at Pacific Board Fabricators plant in California.

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trays, tanks for sweepers, picture frames to be covered with copper, etc., all on custom order. One of the volume products is peg-board, using perforating machines. These are designed to hold or display all kinds of merchandise, purses, plates, etc., for B. B. Butler Co., West Coast manufacturers.

Machinery used at Pacific includes a bending machine, automatic shaper, routers, "Job Selector," saws of all kinds, a molding machine, high frequency welding machines, punch presses or perforators.

The three leaders in the hardboard fabrication in Los Angeles are in complete agreement that the future of their industry is not limited and that there are many applications still to be explored with this versatile wood product.

Distribution and Marketing

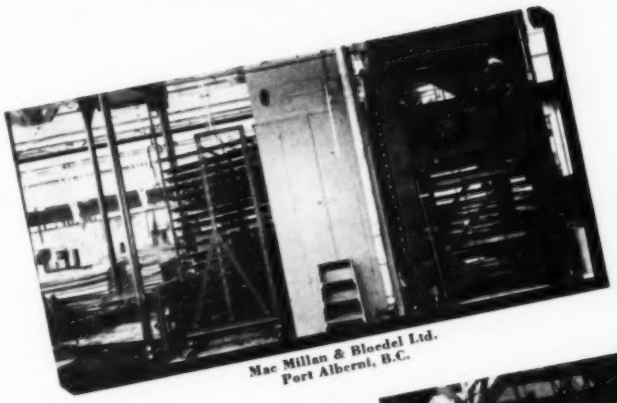
(*Continued from Page 139*)

ager of one western hardboard producing plant pointed out the disruption of market that has been experienced as result of dumping hardboard at substandard prices. Generally this has been substandard board resulting from initial production of new plants. Reactions from such practices can be noticed in a chilling of normal distribution. Since hardboard is a low-margin item without unlimited demand, dumping adversely reacts on all manufacturers of the area concerned, including the firm causing the market disturbance.

"Have your market lined up before getting into hardboard production," advise those who have weathered the lull which follows initial production. Taking such precaution before getting into operation benefits the individual operator and the industry as a whole, according to producer spokesmen.

THERE IS A REASON WHY

ALL PLYWOOD OPERATIONS IN WESTERN CANADA HAVE INSTALLED AMERICAN HOT PRESS LOADING AND UNLOADING EQUIPMENT



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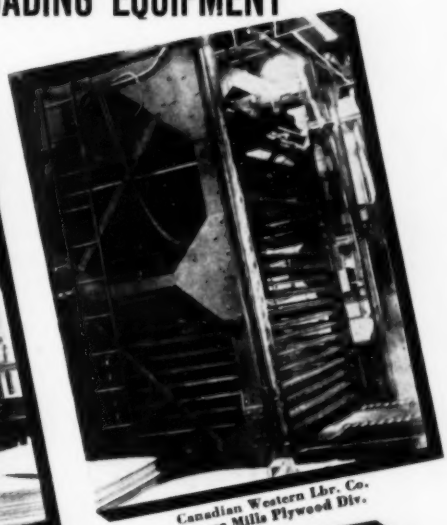

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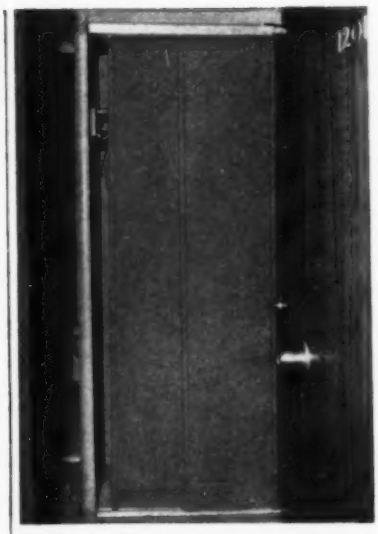


GLIDE-ALL sliding door made by Woodall Industries from Masonite's "Presdwood." These doors may be wallpapered, painted or finished to match surroundings, although the natural finish by itself is attractive. 500 such panels were recently installed in Spokane, Wash.'s Ridpath Hotel.

Hardboard "Glide-All" Doors

One of the largest users of Masonite's Tempered Presdwood is Woodall Industries, Inc., with fabricating plants in Chicago, Laurel, Miss., San Francisco, and New York.

The company manufactures a large line of clip boards, black boards, and items for the display of merchandise in stores, but one of its largest lines is Woodall Glide-All sliding doors.

Woodall claims an advantage of Glide-All Sliding doors to be its simple, economical floor-to-ceiling installation which eliminates all the studding, framing, and plastering time and expense usually required for closets and wardrobes.

"Resinwood" Used Industrially

"Resinwood" is a new industrial board made by Resinwood Products, Rock Island, Ill., from granulated wood fibre bonded with phenolic resins under extreme heat and pressure. Both sides of the finished board have a smooth, natural pine-colored surface, and although no further decorating is necessary, the board finishes readily with various applications. This board has been used extensively in furniture and millwork fields.

★★★ Various research organizations throughout the United States and Canada are continually making very exhaustive tests on hardboard to better determine its various properties, such as toughness, machinability, flexibility, waterproofness, glueability.

R.D. Wood Hydraulic Presses

"... that industrial equipment which has maintained high excellence in manufacture will continue to be sold, and will contribute its worth to uplifting the general quality of everything produced in industrial America ..."

3,675 ton hydraulic press for hardboard manufacture. Platen size: 54" x 198" x 3". Ten openings, designed for ten additional openings. *Write for catalogs of our hydraulic presses.*

150th anniversary

WOOD

R. D. WOOD COMPANY

PUBLIC LEDGER BUILDING, PHILADELPHIA 5, PA.

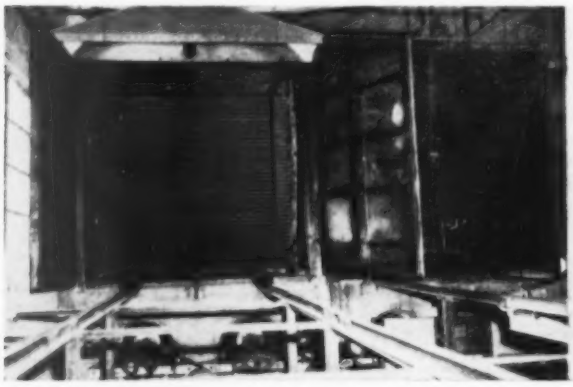
HYDRAULIC PRESSES AND VALVES FOR EVERY PURPOSE • ACCUMULATORS • ALLEVIATORS • INTENSIFIERS

Chapman Installs Hardboard Temper Unit

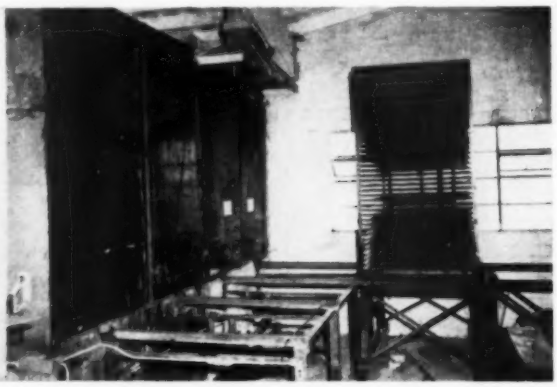
Chapman Manufacturing Co., Corvallis, Ore., has a new production unit for tempering hardboard—using a new tempering oven built by C. M. Lovsted Co., Seattle, for baking the oiled panels. This modern equipment replaces a tempering oven destroyed by fire last year.

This progressive-type Lovsted oven sets parallel with and adjacent to the plant's board humidifier, contains interior heating coils, circulating fans, exhaust and fresh air ducts. It is about 50 ft. long, 9 ft. wide and 10 ft. high. Oiled panels, placed in dolly-supported racks holding two 20-panel pressloads, enter at the charging end. After a rack has been rolled into the oven and swinging doors closed behind it, an electrical switch is closed causing a mechanical pusher to engage the rail-mounted panel package just inserted, thus moving it forward sufficiently on the track to allow space at end for the next charge unit.

As this "last-in" rack moves forward it carries all the racks in the oven forward one length bringing "first-in" rack to end of the closed compartment. The operator, after adding a unit of panels at charge end, next removes the rack of tempered boards that has been progressively worked through the oven clear to the doors through which it discharges.



RACK OF 40 hardboard panels enters infeed end of Lovsted two-fan tempering oven at Chapman Manufacturing Co. plant.



RACK OF TEMPERED PANELS removed from outfeed end of Lovsted oven will be inserted in infeed end of humidifier at left.

Will Handle Entire Output

Panels in the racks are spaced an inch or more apart for unimpeded circulation of hot air to all surfaces of the boards. Two 24-in. fans, each powered by 10 HP motors, circulate air longitudinally through the unit. Air temperatures for the "panel baking" run as high as 300 F. degrees; tempering time runs about four hours for 1/8 in. board, according to Hugo Schmidt, plant superintendent. Foxboro recorder-controllers are used for controlling temperatures in both the oven and humidifier.

This tempering oven was designed and built with capacity large enough to handle the entire hardboard output of the plant.

A dolly-mounted rack of panels emerging from the discharge end of oven moves onto a transfer track, travels a few feet on this and then is inserted into the humidifier. Conditioned panels emerge from humidifier adjacent to point at which oil panels entered the oven. The tempered and humidified boards are removed from rack and run panel-

OREGONBORD

the original
Oregon Hardboard

a product of
CHAPMAN MANUFACTURING CO.
Corvallis, Oregon

SALES AGENTS
ELEVEN WESTERN STATES

WESTERN
hardboard Sales
SECURITY BLDG. • TACOMA 2, WASHINGTON • MARKET 3221

HARDBOARD ASSOCIATION PRESIDENT PREDICTS BRIGHT FUTURE, BUT PLENTY OF HARD SELLING

HAROLD A. MILLER

President of Forest Fiber Products Co., Forest Grove, Oregon, and president of the Hardboard Assn.

Nineteen fifty-three for the hardboard industry will be characterized by a record volume of sales motivated by an accelerated sales promotion effort and by the introduction of added production from some new board mills. With emphasis on sales and market extension, the demand for hardboard during 1953 will be broadened and substantially increased.

The industry realizes the necessity for developing and exploiting new markets for its products, and many hardboard manufacturers are already moving into the consumer goods field with new pre-formed "ready-to-apply" products such as siding, panels, etc.

As hardboard becomes more familiar and popular to the farm and home builder, the lumber retailer will play an increasingly important role in the merchandising and sales picture. Increased retail sales will channel a greater board volume through the building materials distributor and hardboard products will become an essential profit item in every jobber warehouse.

New Product Use Sought

Demand for hardboard in the industrial and fabrication market will continue to increase due to the development of hardboard use in new products, such as Plyron and flush doors.

Both in the construction and industrial markets, hardboard is gradually, but surely moving into a sound economic market position in relation to other sheet-building materials, and these markets are absorbing increased quantities as they discover hardboard's outstanding advantages as well as its comparatively low purchase cost.

The recent wave of enthusiasm to produce a product from wood-waste by some lumber and plywood concerns, principally in the Northwest, will materialize in increased supply of various and sundry kinds of boards of numerous types and qualities. Undoubtedly, an orderly marketability of any such types of hardboard will require market development and intensive sales production.

The newly formed Hardboard Association, made up of the major

Chapman Installs Temper Unit

(*Continued from Page 148*)

following-panel through a skinner and cut-off.

Board Is Straightened

This oil treatment of standard hardboard, followed by oven baking, makes the panels stronger and moisture resistant, according to D. R. Gilkey, plant manager.

The hardboard output of the Chapman plant ,called "Oregonbord," is sold through Western Hardboard Sales, Tacoma, Washington, where Paul Smith is general manager.

Get all the **FACTS** *about*

NEW LOVSTED TEMPERING OVEN

built especially for stronger, more moisture-resistant OIL-TREATED HARDBOARD PANELS *in the plant of*

CHAPMAN MANUFACTURING CO.

CORVALLIS, OREGON

Lovsted Two-fan Tempering Oven handles entire hardboard output of plant. 50'x9'x10', contains interior hearing coils, circulating fans, exhaust and fast air ducts. Is set parallel with and adjacent to plant board humidifier. Oiled panels, placed in dolly-supported racks holding 22-panel press-loads, enter at the charging end.

Dolly-mounted rack of panels emerging from discharge end of oven, moves onto a transfer track, travels a few feet on this and then is inserted into the humidifier. Conditioned panels emerge from humidifier adjacent to point at which oil panels entered the oven. The tempered and humidified boards are removed from rack and run panel-following-panel through a skinner and cut-off.

Progressive-type

LOVSTED EQUIPMENT

belongs in your plant too.

OFFICES AND WAREHOUSES IN
SAN FRANCISCO, CALIFORNIA
LOS ANGELES, CALIFORNIA
HONOLULU, HAWAII - MANILA, R. P.
VANCOUVER, BRITISH COLUMBIA

C. M. LOVSTED & CO., INC.
ENGINEERS AND MANUFACTURERS
4000 W. MARGINAL WAY - SEATTLE 6, WASH.
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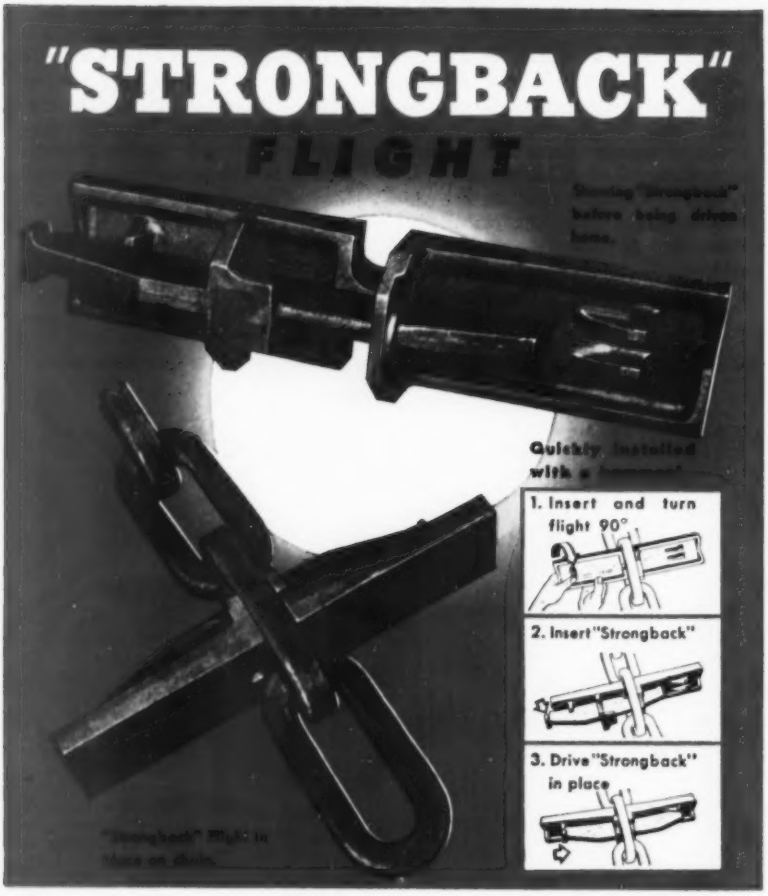
CABLE ADDRESS "LOVSTED"

NOW... another *ESCO* exclusive!



IT'S NEW! • **ONLY TWO PARTS** • **NO FURTHER FASTENINGS** • **PERMANENTLY SELF-LOCKING**

You can install the new *ESCO Strongback* Flight directly into your conveyor chain—in three simple steps! No bolts, riveting or welding. All you need is a striking hammer!

Once *ESCO Strongback* Flights are installed, you can forget them. They stay tight and won't work loose. Top and bottom wearing surfaces are identical, permitting conveying on both top and bottom run—even on those extra-tough jobs that eat up ordinary flights.

The *Strongback* itself serves as a strong, rigid reinforcement to the flight, enclosing the link—keeping flight running true and stable on the chain. Ask your *ESCO* representative about the new *ESCO Strongback* Flight.

Only THE ESCO "STRONGBACK" FLIGHT OFFERS ALL THESE ADVANTAGES

- √ **Fast, easy installation**—with only two parts
- √ **Positive locking**—no additional fastenings necessary
- √ **Long Wear Life** — Specially heat-treated manganese molybdenum-vanadium steel is resilient to shock, yet resists abrasion.
- √ **Greater Stability** in Travel—Provides firm link enclosure.
- √ **Reversible.**

ESCO

Offices and Warehouses: Honolulu, Hawaii; Houston, Texas; New York, New York; Los Angeles, San Francisco, California; Seattle, Spokane, Washington; Centralia, Pennsylvania; Eugene, Medford, Oregon; Salt Lake City, Utah. In Canada: Vancouver, British Columbia and Toronto, Ontario.

ELECTRIC STEEL FOUNDRY CO.

2161 N. W. 25TH AVE., PORTLAND 10, ORE. 712 PORTER ST., DANVILLE, ILL.

PHOTO No. 2 IS AIR VIEW of the Masonite Corporation hardboard plant at Laurel, Miss. This is the largest hardboard plant in the world. In the left foreground is the power plant, which is the largest power plant in the state. Freight cars in the right foreground are bringing in peeled cord-wood lengths, which are unloaded onto conveyors that take them to the chipper in the building immediately behind the unloading dock. From there they are exploded into individual wood fibers which are refined and pressed into hardboards. (Photograph by Kaufmann & Fabry Co., Chicago.)

PHOTO NO. 8 shows three concrete silos and framework for Weyerhaeuser Timber company's new fiberboard plant at Klamath Falls. The new unit will be integrated with the company's Klamath Falls sawmill and will manufacture about 90,000,000 square feet of fiberboard a year on a one-eighth-inch-thickness basis. About 50 per cent of the raw material for fiberboard production will come from white fir timber unsuitable for lumber manufacture and previously with little or no commercial value.

CANADA'S NEWEST HARDBOARD PLANT is shown in the foreground of photo No. 11 of the Sturgeon Falls, Ont., operations of Abitibi Power & Paper Co. To the right of the hardboard plant is the steam plant, on the left is the corrugating board mill. Hardboard was added to the Sturgeon Bay mill's output in 1951. Originally, the mill produced groundwood and sulphite pulp and newsprint. In 1947, after several years' shutdown, it reopened as a corrugating board mill. Wood supply for the hardboard plant is from chips and slabs from nearby sawmills, farm woodlots and Abitibi's 2500 square mile pulpwood concession in the area. Sturgeon Falls is 23 miles west of North Bay, Ont.

Abitibi Power & Paper, one of Canada's largest pulp and paper corporations, headed by Douglas W. Ambridge as president, with head office in Toronto, recently entered into a partnership with Alaska Pine Co. in Vancouver, B.C., to take over and operate pulp mills previously owned by B.C. Pulp & Paper Co. at Woodfibre and Port Alice.

Refer to Hardboard Plant Photos on opposite Page

Ass'n. Pres. Predicts

(*Continued from Page 149*)

hardboard manufacturers in the United States, is taking immediate steps to initiate uniform values and standards for hardboard, both in Government and commercial specifications. This will induce added interest and confidence on buying hardboard that meets known quality standards, and purchasers will feel assured that hardboard manufactured to such specifications will not fall short in doing a job required.

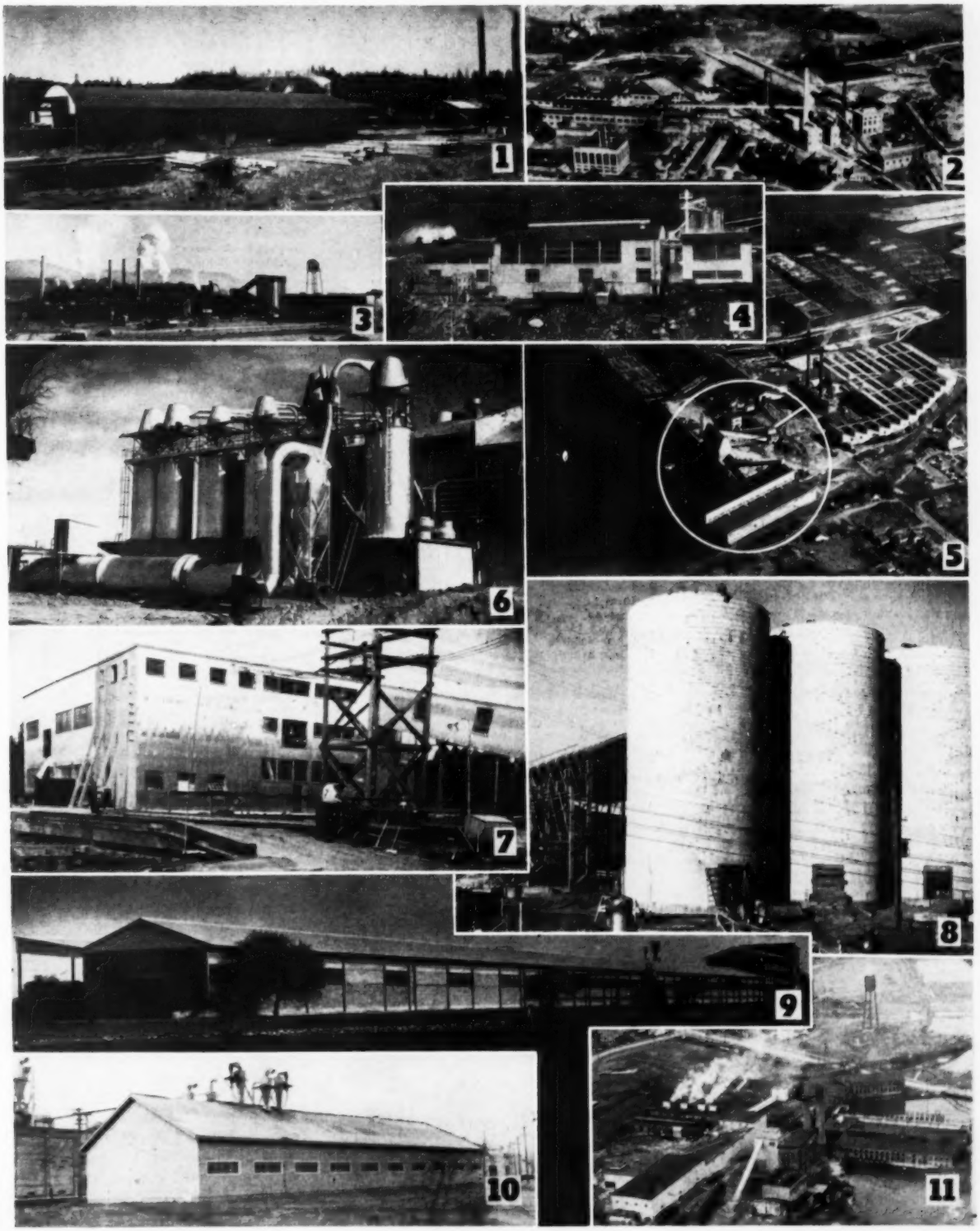
Membership of Two Types

The Hardboard Association will also carry on work to promote, expand and develop new markets for hardboard, and will in general consider and undertake problems common to the interests of the hardboard manufacturers and to the entire hardboard industry.

Membership in the Hardboard Association is open to any qualifying manufacturer in the United States (Regular Membership) and to any others who are interested in the hardboard industry (Associate Membership). It is anticipated that many new interests will join the Association to aid and promote the welfare and betterment of the hardboard industry.

11 BOARD PLANTS IN CANADA, MEXICO AND U. S.

1—Forest Fiber Products Co. 2—Masonite Corp. (Laurel, Miss.) 3—Masonite Corp. (Ukiah, Calif.) 4—Oregon Lumber Co. 5—Anacortes Veneer, Inc. (in circle) 6—Shasta Plywood Inc. 7—Canadian Forest Products Ltd., Pacific Veneer Div. 8—Weyerhaeuser Timber Co. (Klamath Falls, Ore.) 9—Fibracel SA de C. V. Cinbad Velles. 10—Long-Bell Lumber Co. 11—Abitibi Power & Paper Co.



300 USES FOR HARDBOARD

Manufacturers of hardboard, hardboard fabricators and research organizations have discovered many new and interesting uses for hardboard. THE LUMBERMAN here lists 300 of these uses, many of which are already in effect; certain of the items listed are uses where hardboard would prove practical but which may not yet be employed very widely.

Aisle runners
automotive uses
  arm-rest stiffeners
  auto trailer construction & interior
  back of seat ledges
  bus seat backs
  floorboards
  glove compartment liners
  hardware mounting panels
  house trailer construction & interior
  lining for van interior
  pick-up truck rear covers
  seat back stiffeners
  top rack liners
  trailer, commercial, roof decks
  truck bed
  truck cab liners
awnings

Backs, clock
  radio
  stoves (for grease spattering)
baffleboards
barrels
barricades
bars, portable
bases, machine
base for plastic overlay
battens
beehives
bench, work
bins, vegetable
birdhouses
blackboards
boards, bread
  bulletin
  cutting
  drawing
  ironing
  stock brokers
book covers
boxes, flower
  mail
  milk, for porch delivery
  shadow
  shoe shine
breakfast nooks
built-in furniture
  backs
  dividers
  fronts
  shelving
  sides

Cabinets, medicine
  radio
  record
  sewing
  wall
cabins
cans, garbage
carriage bottom inserts
cases, book
  instrument
  sample
casket construction
chests, tool
chutes, clothes
clothes hampers
cold-air returns
concrete forms
cornices
counter construction
covers, ledger
crate liners (farm)

Dark rooms
display construction, advertising
  commercial
doghouses
doors
  cabinet
  garage
  interior flush (surface sheets and interior ribs)
  sliding
  storm
  wardrobe
drainboards
drawer construction
drums, friction

Easels
electrical & communication equipment
  automotive testing instrument panels
  conduit separators
  electric arc weld cabinet housing panels
  electric arc weld mounting panels
  highway & street signal panels (traffic control)
  motor mounting boards
  p. a. speaker cabinets
  radio motor mounting boards
  switchboard jacks
  telephone booth panels
exhibit construction

Facing for plywood
fair buildings
farm buildings
  barns
  grain bins
  hog feeders
  hog brooders
  hog houses
  milk house
  poultry feeders
  poultry hutch
  poultry incubators
  rabbit hutch
  silos
farm use
  conveyor construction
  cutting blocks
  reflectors
  roofs
  salt rock bases
  scoops
  tanks
  troughs
  wagon beds
  wall protectors
fencing, protective on hwy. const.
floors, finish
  sub-layer for insulation on slab floor
food industry
  packing table tops
  perforated dehydrating pallets
  sausage casing grading tables
  starch tray bottoms
  vending machine front, back panels
frames, picture backs
  picture, to be covered with copper
furniture—home
  buffets
  card tables
  chair backs
  chair seats
  children's tables
  desks
  dressing tables
  magazine racks
  mirror backs
  modern furniture
  night stands
  play pens
  sewing machine construction
  waste baskets
furniture—industrial
  laboratory tables
  restaurant table tops
  store fixtures
  x-ray tables
furniture—office
  arch file boards
  book shelves
  chair mats
  chair seats
  clip file boards
  drawer section dividers
  desks
  file cabinets
  letter trays
  mail room equipment
  photo files
  typewriter
  waste baskets
furniture—schools
  bent chair backs
  bent chair seats
  drawing boards
  tablet arms
  utility table tops
  wall blackboard
furniture—outdoor (lawn)

Gable ends
games—See Toys & Games
gates

Hand trucks
heating & ventilation equipment
  bent fan blades
  fan housing panels
  industrial vaive flange protectors
  orifice section panels
  stoker hopper panels
  stove gas valve regulators
holders, chart
  paper towel
hospital equipment
  diathermy instrument panels
  hospital lab. pump bases
  polio treatment boards
  sickroom commode
  x-ray panels

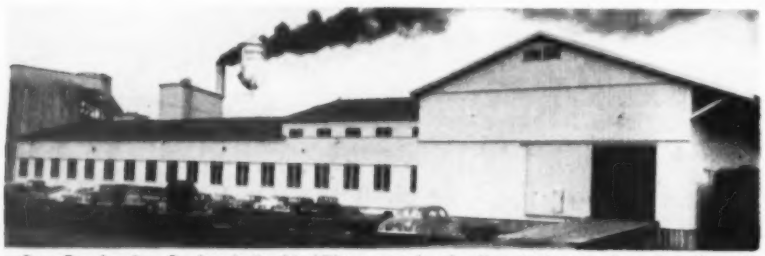
Indirect lighting frames, hoods, etc.
interiors (room)

Kennels

Linings
  bank vault
  basement
  garages
  shaft
  utility rooms
lockers
louvres
luggage

Machinery construction
mantels
marine construction
  cabin interiors
  furniture
  gear containers
  safety decking (screen side)
mats, stove
medical equipment
medicine chests
mouldings, base
military uses

(Continued on Page 217)

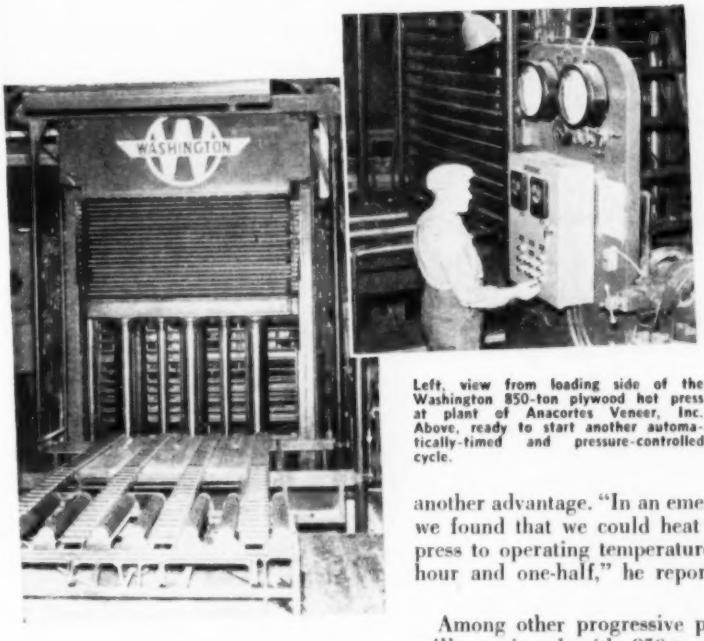


Coos Bay Lumber Co. has built this 150-ton per day hardboard plant at Coos Bay, Ore., the operation to use an original "semi-dry" process. Official "in production" announcement is to be made in near future.

Key personnel of the operation includes J. W. Forrester, vice president and general manager of Coos Bay Lumber Co. and Armin A. Wehrle, superintendent of hardboard plant.

From forest to finished product, Washington Iron Works knows the needs of the forest products industries.

Washington Hot Plate Presses Deliver Competitive "Edge"



Left, view from loading side of the Washington 850-ton plywood hot press at plant of Anacortes Veneer, Inc. Above, ready to start another automatically-timed and pressure-controlled cycle.

HOT plate presses that increase production, protect quality by exact control and reduce operating and maintenance cost, are a profitable investment. Because Washington presses are engineered to deliver an "edge" in all these respects, they have been the choice of an increasing number of leading plywood, door and hardboard producers.

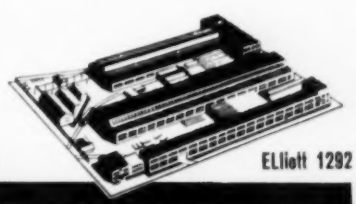
An 850-ton, 20-opening, 54" x 106" Washington press has been in daily operation since January 1951, producing "Armoron" plastic faced plywood and "Armorbond" exterior plywood for Anacortes Veneer, Inc., Anacortes, Wash. The unit has the Lukens labyrinth steam plates, individual steam traps and strainers, and automatic multi-pressure controls featured by all Washington hot presses.

In addition to minimum deflection, uniform steam plate temperatures and avoidance of leaks, H. W. McClary, manager, points to quicker heat-up as another advantage. "In an emergency, we found that we could heat up the press to operating temperature in an hour and one-half," he reports.

Among other progressive plywood mills equipped with 850-ton Washington hot plate presses are the Evans Products Company, Winchester, Ore., (formerly the Mar-Linn Timber Co.), and the Paragon Plywood Division of Peninsula Plywood Co., Crescent City, Calif. For door production, where exact and uniform platen pressures are required, Washington presses can be furnished with a unique counter-balance feature, an example being the 16-opening, 600-ton plywood and door press recently installed at the McCleary, Washington Plywood and Door Division of Simpson Logging Company.

Get the Full Story!

As the leading western manufacturer of hydraulic hot plate plywood and hardwood presses, and pulp baling presses, Washington Iron Works invites inquiries for either standard or special types of presses and accessory devices.

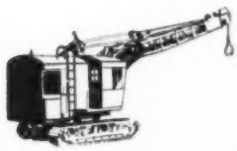


1500 Sixth Avenue South, Seattle 4, Washington ELliott 1292

WASHINGTON IRON WORKS

Since the earliest days of logging in the West, the development of special equipment for more efficient production of various forest products has been a major activity of the Washington Iron Works. Over the years, the firm has lived and grown with the logging industry and has contributed to the advancing mechanization of all steps from standing tree to such finished products as lumber, pulp, paper, plywood and hardboard.

Today, the Washington Iron Works is a modern 8-acre plant embracing complete facilities for design, pattern work, metallurgy, iron and steel casting, machining, fabrication and testing. In addition to pulp and plywood presses, equipment for logging and related industries built by the Washington Iron Works includes:



The mobile Washington Trakloader for combined yarding and loading, now offered in a range of three sizes and with optional features to suit widely varying logging conditions.

Stationary yarders and loaders, gas and diesel powered, in types and drum arrangements for all operating requirements.

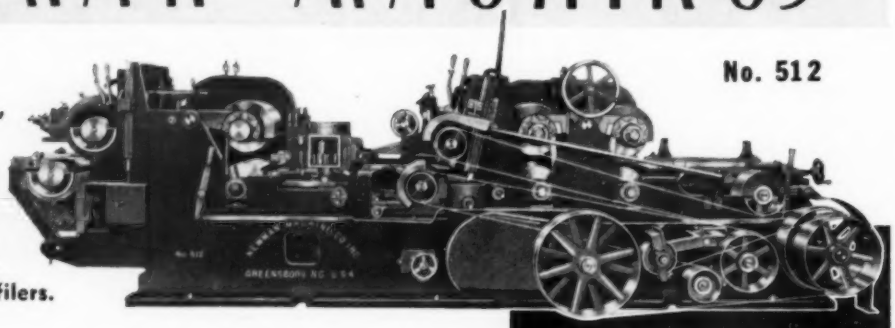
Blocks and fairleaders, featuring roller bearing types—cast, forged, heat treated, machined under one roof.

Automatic, cycle-controlled, rapid traverse pulp baling presses.

NEWMAN MACHINES

Newman

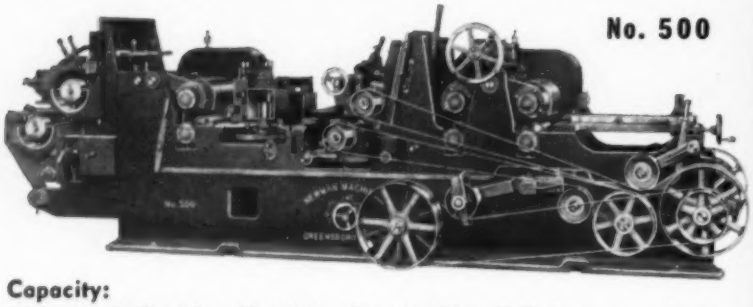
No. 512



Capacity: 16" and 24" wide, 8" thick.
Speeds up to 325 feet per minute.
8" dia. cutting circle.
Six 12" dia. feed rolls.
Single and double profilers.

BALL and ROLLER BEARING PLANERS AND MATCHERS

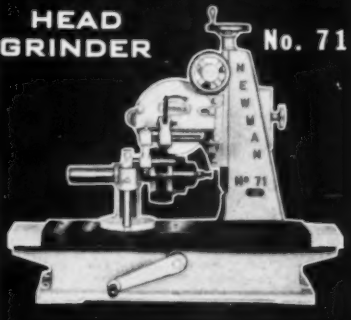
No. 500



Capacity:
14" and 24" wide, 6" thick. Speeds 40 to 200 feet per minute. 7" cutting circle. Six alloy steel feed rolls. High carbon special alloy steel cylinders. Single or double profilers.

The ball bearing NEWMAN 71 (shown below) will grind all sizes of cutter heads. Table is 33" long by 9" wide with horizontal travel of 25" and is heavily ribbed to maintain accuracy over entire travel. Maximum cutter head swing is 11".

HEAD GRINDER **No. 71**



ORDER NOW FOR EARLY DELIVERY

ALL NEWMAN cylinders or heads are DYNETRICALLY BALANCED insuring an accurate and superbly finished product.

Ball and Roller Bearings

No. 55 AUTOMATIC PINEAPPLE FEED TABLE

The NEWMAN 55 feeds stock automatically to high speed planers and matchers up to 450 lineal feet per minute. Capacity: 30" wide, 8" thick. All adjustments and controls are centrally and conveniently located.

No. 8-B PLANER, MATCHER AND MOLDER

Unsurpassed for work in small and medium mills

The NEWMAN 8-B planes 22" wide and 8" thick, joints 4" thick and will match 14" wide. 6" diameter feed rolls. Speeds of 30, 50 and 75 feet per minute.

MAY WE SEND YOU FULL DETAILS?

NEWMAN MACHINE COMPANY, INC.
GREENSBORO, NORTH CAROLINA, U. S. A.

Great Progress in LOGGING MACHINERY AND EQUIPMENT

A REVIEW OF SOME OF THE MAJOR MECHANICAL DEVELOPMENTS IN 1952 AND A PRESENTATION OF VIEWS OF PROMINENT LOGGERS

A rubber-tired Carco arch and Tournaskidder in the Comox Logging & Railway Co. operations in the Nanaimo Lakes region on Vancouver Island, B.C. (Jack Cash photo.)

As in just about every year since there has been a logging industry, 1952 was a year of continued progress in the methods and means of producing and transporting logs. Logging methods and machinery have never been standardized and likely never will be.

RUBBER-TIRED ARCHES

While not initiated last year, the use of rubber-tired logging arches in 1952 gained much ground all over the West. One of the first to use a rubber-tired arch was the Lakeview Logging Co., Lakeview, Ore. The largest change-over to this type of equipment was that made last year by the Comox Logging & Railway Co., in its Vancouver Island, B.C. operations, where some twenty-four units were put into operation. These were conversion units, the conversion having been done in the company's own shops.

Several advantages favor the conversion one of them being maintenance. The rubber-tired arches installed four years ago are still in service without the necessity of any repairs during the intervening period, and Logging Superintendent James Sheasgreen sees no reason why they shouldn't stand up satisfactorily for ten years.

The rubber-tired arches, he says, roll freer when the machines are going back empty for a turn of logs. He admits that they tip more easily, but that is a matter of educating the tractor drivers. Once an operator gets used to the new equipment and makes allowance for the new setup, there is no danger on that account.

Another point in their favor is that there is virtually no "cat" line breakage. The machines with the rubber tires pull with less shock; they take up the slack more gradually and haul more steadily without jolting and friction.

Considerable progress was also made during the year in the use of rubber-tired tractors. A number of such units are now in operation.

The fact that tire manufacturers have developed snagproof tires has been a potent factor in encouraging use of rubber-tired arches and tractors.

LOG LOADERS

The self-propelled type of log loader continued to increase in popularity during the past year. It is doubtful if there was ever a year in

This rubber-tired Hyster arch used by the Lakeview Logging Co., Lakeview, Ore., was one of the first units of its kind ever tried out in the logging industry.

TREE FARMS . . .

AMERICAN SIZE

On more than 23 million acres of privately owned forest lands, men are growing and harvesting timber as a crop. The owners of these tree farms are pledged to protect their timber from fire, insects and disease . . . thus assuring crop after crop of trees for use in wood products for you and your children.

In the Northwest, timber owners have combatted the ravages of the spruce budworm. One large-scale program in the States of Washington and Oregon has conserved more than 40 billion board feet of otherwise doomed timber.

Aerial spraying of insecticide did the job. This Pennsalt-produced insecticide proved 99% effective, at an average cost of little more than $1.00 per acre. The timber saved from potential destruction is conservatively valued at $785 per acre.

No doubt, similar methods could prove equally effective in ridding other forests of insects and disease . . . which annually destroy 30% more timber than forest fires. Pennsalt technicians will continue to offer their assistance on these problems from coast to coast.

In the West:

Pennsylvania Salt Manufacturing Company of Washington
Tacoma, Wash. and Portland, Oregon

In the East:

Pennsylvania Salt Manufacturing Company
Philadelphia 7, Pa.

Timber is a crop . . . let's protect it

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LIQUID CHLORINE • CAUSTIC SODA • BLEACHING POWDER • POTASSIUM CHLORATE • SODIUM CHLORATE • ANHYDROUS AMMONIA • PERCHLORON® • SODIUM ARSENITE • SODIUM HYPOCHLORITE • MURIATIC ACID • SULPHURIC ACID • ANHYDROUS HYDROFLUORIC ACID • ACID-PROOF CEMENT • DDT • PENCO FOREST SPRAY

Pennsalt Chemicals

Progressive Chemistry for Over a Century

RUBBER-TIRED ARCHES APPEAR AS MAJOR TREND

the history of logging when so many modernly designed and constructed log loaders were put into service. Such units fit into today's need of the industry for more production at lower cost.

More use is now being made with these new loaders as yarding units. They have the capacity for not only loading logs yarded by tractors but also for yarding and loading independently. It is not unusual for crews of from three to five men to yard and load up to 75,000 feet per day. Such units have been found most useful and profitable in cleaning up corners not economically reached by skyline methods. There has been great improvement in the design and construction of booms.

TRAILERS

One development noted during the year was the use made of long-base trailers. Use of this type units has been particularly advantageous in areas where highway regulations are such as to cut down allowable loads. In Idaho one firm using long base trailers was able to haul loads up to 72,000 pounds gross weight. And in California a lumber company increased its loads from 68,000 to 76,800 pounds.

LOG TRANSPORTATION

The trend during 1952 was distinctly toward more off-highway hauling. Speakers at the Intermountain Logging Conference and the Pacific Logging Congress stressed the importance of building private roads wherever possible.

However, the practice of hauling tremendous loads of logs on private roads and thus utilizing the full carrying capacity of the trucks and trailers brings some problems particularly in matter of providing transfer facilities for reloading logs onto public highway trucks. Reloading under such conditions likely received more attention in Idaho than in any other state. The practice most commonly followed is to divide by center stakes, the 14 or 16-foot load coming out of the woods over private roads into two packages, each transferred by crane to a public highway truck and trailer, or placed in storage racks to be reloaded later.

Some operators used high-stake bunks to good advantage in 1952, especially in the transportation of smaller logs.

SKIDDERS

During 1952 Orion Bowman & Sons, Sardis, B.C., put into service a Skagit skidder which had some new features. This was a B42000 unit with a differential interlock, with a four-speed hydraulic drive. It was powered with a 248 HP Waukesha diesel, although the machine was designed to use 400 HP if necessary. It is used as a modified skidder but can be used as a slack line, hi-lead or stationary unit.

The Berger Engineering Co. brought out its Model 165FAM skidder with Twin Disc air-operated three-speed transmission. It has a two-speed main drum with six variable speeds on the main drum and three speeds on the haul back and strawline drums. It is powered with a Cummins HRB I-165 HP diesel. This machine went into service in the operations of Wilmac Loggers Co., Granite Falls, Wash., contract loggers for Scott Paper Co., Soundview Division.

Indicative of the high powered skidders demanded by some operators was the 550 HP Cummins Diesel powered Tyee skidder, with Twin Disc torque converter put into use in its Sarita River operations by McMillan & Bloedel Ltd.

Showing off-highway trucks with 16-foot bunks loaded in two sections at the reload station in Potlatch Forests, Inc., operations, Idaho. Note the high stakes, now being quite widely used.

MOBILE LOADERS CONTRIBUTE TO FULLER UTILIZATION

A rubber-tired Caterpillar Diesel DW 10 tractor with Esco pan ground-skidding logs in the Gisle & Robstad operations, near Kerby, Oregon.

TORQUE CONVERTER TRANSMISSIONS FOR TRUCKS

Many loggers have long held that torque converters could be used to advantage on log trucks. During the year progress was made in the development and use of this type equipment. The Twin Disc Clutch Company designed and built it and they were tried out in the West. The Hammond Lumber Co., Eureka, California, operated a Mack and a Peterbilt truck with the new Twin Disc Model DF Converters and liked them so well that several other new trucks will be similarly equipped.

POWER SAWS

Most loggers credit the use of power saws as one of the most important new developments in logging equipment. Their use has become just about universal. During the year there were several developments in this field especially in making use of power saws for purposes other than falling and bucking timber. Weyerhaeuser developed a device to attach to power saws so that they can be used as pumping units. A saw with a 7 HP motor can be used to serve two nozzles at 75 pounds pressure. Another device enables the power saw to be used as a winch to pull strawline on steep ground.

WEIGHING DEVICES

Much attention was paid during the year to the installation of weighing devices on trucks. Many loggers are installing weighing devices on all their trucks. Placement of these scales pays off in elimination of fines for overloading.

AIR TONGS

This piece of equipment, although not new in 1952, found increasing acceptance among loggers. The Berger-Rees air tongs, the first to be developed and used by loggers, was greatly improved during the year. The Osgood Co., late in the year, announced a new air tong, a device which was used in the operations of Potlatch Forests Inc., Lewiston, Idaho.

RADIO

Use of two-way radio increased spectacularly during the year. There are no less than 3000 units in operation in United States logging camps.

A new development in the radio field was the radio-activated signal whistle. This instrument enables communication to be maintained between choker setters and the yarders without use of wires. The chokerman carries a light-weight backpack which transmits to a receiver right on the yarder. An impulse sounds the signal.

Time and space do not permit mentioning all the developments taking place in the field of logging machinery and equipment, but calling attention to some of them will emphasize the importance loggers place on owning and operating the best machinery it is possible for them to purchase.

Supplementing this survey of machinery and equipment developments in the logging industry are statements from a number of well-known loggers who give their ideas on "What's New in Machinery and Equipment."

Woods trucks in the Ivory Pine Co., operations, Dinuba, Calif., leave their loads and trailers here to be picked up later by the public highway trucks. This system was developed by Page & Page Co., Portland.

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WELL-KNOWN LOGGERS PRESENT VIEWS

By

JOHN A. WAHL

Manager, Logging Division
Weyerhaeuser Timber Co.
Tacoma, Washington

JOHN A. WAHL

I think some of the biggest developments in logging machinery during the past two years have been the improvement in power saws, also the improvement in large tractors such as the TD 24 International and HD 20 Allis Chalmers. I think these pieces of machinery have done more in the line of production than any other item that has come out.

I also want to mention that the logging industry has made the biggest stride in preventing accidents in the woods during the last two or three years. To me this is one of the biggest improvements.

By

DON E. COLWELL

Logging Manager
Cascade Lumber Co.
Yakima, Washington

DON E. COLWELL

In spite of the tremendous increase in road costs the development of modern machinery has made lighter cutting possible. In this respect I think it is generally conceded that the development of the power saw is the most important item.

Next in importance of development, in my estimation, is the mobile rubber-tired loader. It has contributed significantly in the practicability of logging on light cuts in the pine area.

The swing boom feature does away with the necessity of brow-logs or skids. It can load from either side with equal ease. It can load from banks from behind or when logs are skidded "endo" to the truck. There are other advantages too, such as being able to swing or turn the log when it is necessary to reverse the butt from the top for building a safer load on the truck.

The development of faster crawler tractors and rubber-tired arches has speeded up skidding in many areas. The tire manufacturers' development of snagproof tires has made the rubber tired arch practical and useful.

The development of modern logging trucks has been another significant factor in increasing the ability of the industry to make lighter cuts and improve utilization. More powerful light weight motors, larger wheels and tires have produced trucks that can negotiate adverse grades rapidly and decrease hauling time appreciably.

The use of stakes on trucks and trailers and bunks have decreased loading time in handling the many small logs that are a development of increased utilization.

By

GORDON MANARY

Resident Manager
The Pacific Lumber Co.
Scotia, California

GORDON MANARY

It is my opinion that one of the most valuable and recent contributions to the industry has been the development of the self-propelled track-loader. This piece of portable equipment lends itself admirably to present day logging practices designed toward maximum utilization of forest materials. Its maneuverability provides opportunities to harvest much marginal timber which under ordinary practices would not be taken due to the offset of added rigging up costs. In this same regard the self-propelled track-loader is ideal for use in re-logging operations.

Undoubtedly in the field of log transportation the most significant improvement since the advent of hydro-tarders is the torque-converter braking mechanism. Any added safety device designed to minimize the hazards in log transportation is always welcomed by the industry.

By

ROBERT W. OLIN

Mechanical Superintendent of the Woods, Potlach Forests, Inc.
Lewiston, Idaho

ROBERT W. OLIN

I have tried to view Western Logging generally in my ratings even though I feel certain many other items carry an important local or regional rating.

The outstanding recent development in logging machines is the general use of the torque converter. Recently applied to log loading cranes, it provides new crane flexibility and performance at reduced maintenance costs. Air controls and other auxiliary devices can now be used with the cushion provided by torque converters. Locomotive cranes so equipped have performance features as desirable as electric drives. Crawler tractors have certainly turned in a good account of their torque converter use, especially on construction machines.

Off-highway heavy duty torque converter log trucks are now being designed and early models are out.

Preliminary operation reports are favorable. Gear shifting is greatly reduced and grade performance is good. Limited braking with torque converters is possible in some designs. The highlight of early experience is in greatly reduced engine, gear, and brake maintenance.

Rating high on my list of developments because of its over-all value in keeping machines running is the adaption of two-way radio to logging. Wide use and acceptance of radio as a logging tool instead of a fire defense agent has occurred in the past two years.

Power actuated loading devices such as air tongs, air grapples, and clamshells will have a far reaching effect on the industry, especially where small logs are loaded. Many refinements and new designs are bound to follow.

The willful interest of the industry to adapt its machines to limits established by safety codes and highway limits has brought about several interesting devices. Among these are log bundling schemes, weighing devices, re-loading in packages to highway trucks and other accessory items.

In summary, I think the torque converters come first, radio second, log loading devices third, with acceptance of reasonable regulations on machines as fourth.

By

E. P. IVORY

President, Ivory Pine Company of California
Dinuba, California

E. P. IVORY

Regarding developments in logging machinery and equipment, I consider the following very important:

1. The larger (45,000 lb.) low center-of-gravity tractor which permits operating down hill on steep slopes.

2. The large, long-tread tractor-crawler crane with various booms and strapping devices for handling heavy logs.

3. Transfer systems of log loading in truck units, permitting accumulation near the loading point or unloading point.

By

E. P. STAMM

Logging Manager
Crown Zellerbach Corporation
Portland, Oregon

E. P. STAMM

It is my opinion that the following items have made the greatest contribution to more efficient logging within the past few years:

1. The portable tracklaying type of excavator loader, such as the conversion to large shovels and the Washington TRAKLOADER, making it possible to speed up loading operations and load at more frequent intervals along the roads, as well as a considerable savings in the rigging up time of spar trees where the old type boom was used.

2. The adaption of air tongs to this type of equipment has, we think, materially reduced the accident hazard and speeded up the loading of small logs, which is becoming an increasingly important problem every year.

3. The use of portable spars while still in its infancy promises to give us a new and useful tool.

4. The use of the rubber tired tractor, such as the LeTourneau and several other four-wheel drive rubber tired units, have considerable possibilities in taking out isolated small tracts of timber which are inaccessible either to conventional yarding equipment or to truck loads either because of excessively steep grades or lack of ballast or other considerations.

5. Power saws have been tremendously improved and have done a great deal to attract new men into that part of the industry, whereas very few young men were willing to break in as fallers and buckers using manual equipment.

6. The use of the relayer truck equipment where a relatively few trucks operate on the steep, narrow and sometimes crooked woods roads, and the loads are transferred at the junction of the branch roads and the main road and other trucks take the loads on to the mill or log dump has, we think, substantially reduced the accident hazards on such roads and gives an opportunity for more efficient utilization of the time of the loaders because trucks can get to the landing more frequently and has reduced the amount of lost time at the landing waiting for trucks.

No doubt there are others, but these are the major improvements or developments in logging machinery that come to mind at this time.

By

C. C. JACOBY

Logging Manager
C. D. Johnson Lumber Corp.
Toledo, Oregon

C. C. JACOBY

The development and improvements in power saws, chiefly the one-man bucking saws, stands out to me as the outstanding advancement in logging equipment during the past two years.

Next, in my opinion, is the development of the shovel loader.

Mountain Logging System

Logging in the mountainous regions of Germany has seen an increased number of engine-driven rope winches, as well as a new system known as the "Wyssen Cable System," which is receiving quite a bit of notice. (The Swiss have been credited with the patent.) This system consists of a movable overhead cable system which can be erected or disassembled in a relatively short time. The engine has attached cable drums and can climb by itself, in intervals of about 800 feet. The timber is lifted vertically from the logging area, so that clear-cutting is not necessary, and moved clear of ground contact over ravines, rivers, moors and other obstacles to conventional yarding. It is said that weather conditions are seldom a barrier to operation.

EL SALVADOR—Indiscriminate consumption of logs and failure to reforest have caused the disappearance of El Salvador's once-lush forests. Construction there today is largely with brick or concrete, whereas 25 years ago lumber was used extensively. There is but one sawmill in commercial operation and it gets its logs from Nicaragua.

PULPWOOD INDUSTRY CREATES POTENTIAL MARKET FOR WOODS AND SAWMILL WASTE

BY
W. S. BROMLEY
Executive Secretary, American Pulpwood Association

The utilization of sawmill and woods waste and those species of trees heretofore considered unfit for the manufacture of pulp and paper products is making a distinct new trend in the lumber and pulp and paper industries. The best figures available from the Forest Service for the year 1951 indicate a national total of 18.3 million cords of softwood pulping fibre to be derived from mill residue, logging leftovers and cull trees. With the inclusion of hardwood species, a doubling of this softwood figure may be possible.

W. S. BROMLEY

Now that this country's standard of living demands the consumption of those species of timber, presently considered most desirable, in quantities exceeding all previous record, the continued rise in stumpage prices and cost of production places sawmill and woods waste in direct competition with those other forms of raw material currently consumed by the pulp and paper industry.

WOODS WASTE

Woods waste remaining after sawlog operations such as that illustrated in Figure No. 1, in the form of tops and injured second growth can be marketed as pulpwood provided it is cut according to specifications of the local mills.

The national softwood waste available in this form totals 12.8 million cords. By regions, this is shown in the following table:

SOFTWOOD—CHIPPABLE WOOD WASTE—1951

South	2,000,000 cords
North	800,000 cords
West	10,000,000 cords
Total	12,800,000 cords

Thinnings, often classified as noncommercial because of small size, constitute a large source of pulping fibre not included in the above figures. Utilization of this material becomes possible whenever suitable bark separation, logging and handling equipment is developed. This will make the venture economically feasible.

MILL WASTE

Since ½ cord of high grade chippable fibre can result whenever a thousand board feet of lumber is sawn, the total volume of good pulping fibre resulting from the annual production of rough lumber throughout this country reaches astounding proportions. In 1951, some 5,500,000 cords of softwood alone were available from slab edgings and trimmings. Although a large part of the total sawmill residue is used by the producing mills, largely as fuel, it is conceivable that such residue could be made available for pulp through substitution of other sources of power and heat or through the greater efficiency in the use of this material. Following is a break-down of this national total into regions:

SOFTWOOD—CHIPPABLE MILL WASTE—1951

South	2,000,000 cords
	1,700,000 cords (currently used as fuel)
North	800,000 cords
West	1,000,000 cords
Total	5,500,000 cords

FIGURE I—Recovering woods waste following a logging operation (Southland Paper Mills, Lufkin, Texas).

In the development of proper equipment and methods, the West Coast region, through its relatively young paper and lumber industry, has pioneered the utilization of this waste by integrating the pulpmill with the sawmill, both at a single location. Encouraged by the success of such operations in the West, problems of handling and transportation are being worked out so that integration becomes possible even though the sawmill is separated from the pulpmill by long distances.

In the latter case, the following known factors require close attention: (1) material handling (2) transportation of products (3) practical bark separation methods (see Figure #2) (4) chip quality and manufacture and (5) the coordination of activity between both integrated units. Careful coordination is required whenever the source of supply comes from many small portable and semi-portable sawmills.

(*Continued on Page 169*)

FIGURE II—Barking sawlogs, making mill waste utilization possible (Southern Lumber Co., Warren, Arkansas).

NOW!

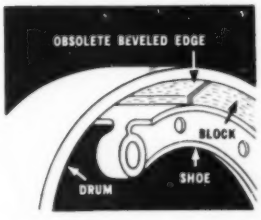
WORLD BESTOS brake blocks

give you 10% MORE braking surface

plus NEW WIPER-EDGE CLEANING ACTION

First, it was famous RED BLOCK with the sensational NO-FADE GUARANTEE. . . . Now it's *another* exclusive World Bestos development to give you *better braking* and *greater economy* in all heavy-duty operations.

New World Bestos *WIPER-EDGE* eliminates obsolete bevels . . . turns them into useful *working surfaces*. *Wiper-Edge* prevents grit, grease, water, etc., from collecting on friction surfaces where it will score drums and damage linings. *Wiper-Edge* actually *wipes* brake drums clean. *Wiper-Edge* adds more friction material, gives you *full block thickness* and strength at each end . . . eliminates cracking or splitting at end-bolt holes.

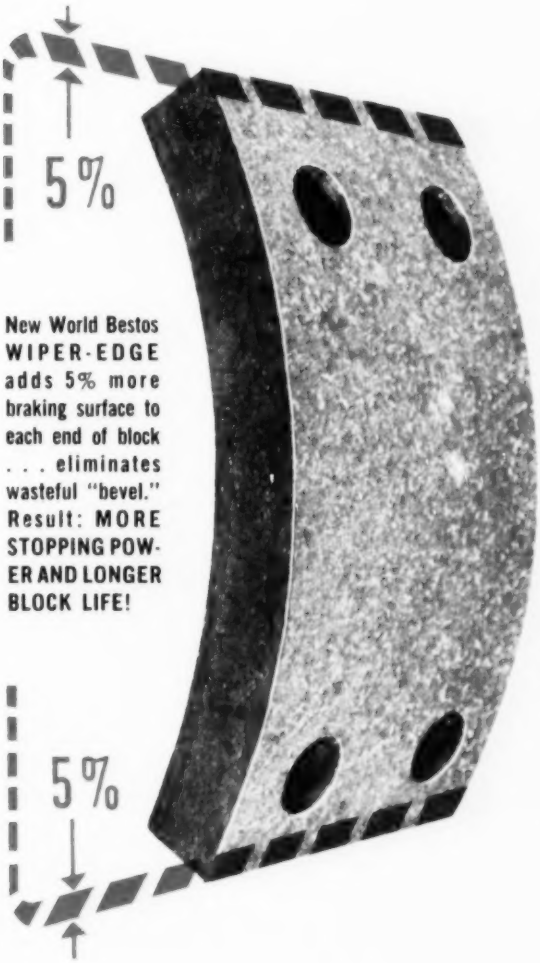


Obsolete beveled ends act as funnel for dirt, grease, water

Beveled brake blocks are a carry-over from the old days of flexible brake lining when the ends tended to curl up and create unequal braking pressure. Rigid blocks need no bevels . . . in fact bevels allow grit, grease and water to feed onto the brake lining and drum surfaces, scoring drum and damaging blocks.

New World Bestos WIPER-EDGE Actually Wipes Drum Clean

Dirt can't feed onto braking surface. *Wiper-Edge* keeps drums clean. WB *Wiper-Edge* adds 10% more braking surface and more friction material to blocks. Gives full block thickness and strength at end-bolt holes. An exclusive World Bestos feature.



New World Bestos **WIPER-EDGE** adds 5% more braking surface to each end of block . . . eliminates wasteful "bevel." Result: **MORE STOPPING POWER AND LONGER BLOCK LIFE!**

For full information about the complete World Bestos Brake Block line contact these World Bestos warehouses . . .
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PORTLAND, ORE., Sparks-Wills, Inc., 511 S. E. Market St.
VANCOUVER, B. C., Western Equipment, Ltd., 102 Main St.

WORLD BESTOS NEW CASTLE INDIANA

the TALL

MURPHY

Mr. Wilson Boyer, Fleet Superintendent, Murphy Lumber Co., says: "... After trying several different types of brake lining we found that World Bestos RED BLOCK "J" Combination is best bet on the market for long wear, lower maintenance and lack of brake fade."

J. NEILS

Mr. G. Albert "Al" Watford, Truck [illegible], Neils Lumber Company, says: "... we found that the only satisfactory brake lining for our trailers was World Bestos "J" Combination. It gives us positive brakes ... long life."

WEYERHAEUSER

Mr. Charles Pearson, Equipment Superintendent, Weyerhaeuser Timber Company, says: "... World Bestos RED BLOCK "J" Combination has increased drum life and makes it possible to operate trailers for the first time without using water on the drums. Our records show RED BLOCK gives greater mileage between block relines."

GARDINER

Mr. Grover Woods, Master Mechanic, Gardiner Lumber Company, says: "We have been using World Bestos (Big Red) Brake Blocks and have found that they do an outstanding job! We will be only too happy to recommend them to anyone who should care to contact us."

WALTER WILEY

Mr. Walter Wiley, of the Walter Wiley Loggers Co., says: "... Now, thanks to RED BLOCK, we have completely eliminated the use of water ... our drivers get more brakes ... our mechanics don't have to take up on brakes so often. We have used all types and makes of brake lining and I can honestly say World Bestos "J" Combination has proved far superior."

TIMBER takes to WORLD BESTOS

Sensational RED BLOCK

solves loggers' biggest brake problems

1. Guaranteed to Eliminate **BRAKE FADE** (Heat or Water)
2. Prolongs **DRUM LIFE...** Reduces Replacement Expense
3. Gives **MORE MILEAGE** Between Relines

Read what they say about World Bestos!

No fade with capacity loads on miles of heavy grade . . . no need to use water on drums . . . reduced drum wear . . . more mileage between relines . . . less upkeep! Significant statements from the records and letters of some of the best known operators in the lumber industry! Important proof that the exclusive new RED BLOCK in the "J" Combination gives unsurpassed brake performance on the heaviest logging hauls . . . reason enough why timbermen throughout the West and Northwest are equipping their truck and trailer fleets with World Bestos, the brake block that solves their biggest and costliest brake problems!

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102 Main St.
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WB WORLD BESTOS NEW CASTLE, INDIANA

Here's how RED BLOCK stops brake fade

. . . gives more mileage . . . reduces drum wear

New Formula Retains Full Friction Even at Red Heat!

Ordinary friction materials lose their friction at temperatures of 600° F. and above. The revolutionary new RED BLOCK formula (an entirely new approach to the fade problem) actually retains full friction at brake temperatures as high as 1300° F. (cherry red)!

RED BLOCK is unaffected by glaze or water film. Brake drums develop a smooth finish that provides a perfect braking surface at all times. Thus, lower air pressures are required . . . resulting in decreased drum wear and less strain on the entire braking system. Positive-acting, dependable RED BLOCK gives the driver better control of his vehicle . . . greater confidence . . . greater safety!

RED BLOCK is so nearly perfect in its braking characteristics that only one segment is required per wheel. Long wearing World Bestos "D" Blocks are used on the other three locations as shown in the diagram. This "J" Combination provides *high friction* plus *long wear* . . . assuring stable, dependable braking action under all conditions.

Here's What RED BLOCK Does for You . . .

1. Completely eliminates brake fade under any and all conditions (heat or water).
2. Reduces heat-checked drums. Lowers drum replacement costs.
3. Keeps drums free from glaze and organic film caused by continuous high-temperature operation . . . maintains braking surfaces in perfect condition.
4. Provides fast, smooth brake action. Brakes are always "there" when you need them. Result, greater safety on steep grades under heavy load with less driver fatigue.
5. Keeps brakes cooler-running, longer wearing. Protects entire brake assembly. Reduces repair and reline costs.

Complete Stock of RED BLOCK and Other World Bestos Brake Blocks Available at These World Bestos Warehouses

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VANCOUVER, BRITISH COLUMBIA — WESTERN EQUIPMENT, LTD., 102 MAIN STREET

North-Robbins Expands

ERLING P. THOMPSON, (left) who was recently named vice-president of North-Robbins Plywood, Inc., Seattle, confers with the newly appointed sales manager, JOHN W. ANDERSON. Both men are well known in the millwork, plywood and door field of the Pacific Coast

Further expansion of their wholesale-carload sales department is announced by North-Robbins Plywood, Inc., Seattle, Washington. Simultaneously, it is reported that Erling P. Thompson has been named vice-president and John W. Anderson, salesmanager, of the firm.

The organization deals in carload quantities; and with the expanded sales facilities North-Robbins now offers house doors, entrance doors, craw-fir-doors, windows, sash, screen doors, fir mouldings, hollow core and solid flush doors in both fir and hardwood, fir plywood (interior and exterior), hardwood flooring and fir lumber.

The new vice-president, Thompson, was formerly associated as salesmanager with the Northwest Door and Plywood Sales, Inc., of Tacoma; and he has had 19 years experience in the door, plywood and millwork field. Anderson has been associated with North-Robbins for the past seven years and specializes in the sale of plywood, doors and hardwood flooring.

At the time this announcement was made, Thompson said: "North-Robbins Plywood will continue to maintain sales offices in its present location. We have added teletype service and enlarged our staff in order that our customers throughout the nation may be served better. With substantial production backing us, we can assure our trade a continuous supply of all wood products."

New Hydraulic Barker Installed by Masonite

Continuing the trend in the forest industries for more and better barking of logs, Masonite Corp, at Ukiah, Calif., has installed a new Simons hydaulic barker, the first of its type and size ever installed in the redwood region.

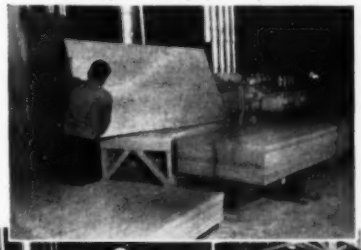
This barker consists of two barker heads through which water flows at a pressure of 1400 lbs. psi. Each head has two nozzles shooting 325 gallons of water per minute on the log. The logs emerge perfectly clean, free of bark, rot pockets and foreign matter liable to damage saws or chipper knives.

At Masonite, the water is used over again following a "cleaning." Particles of bark down to 0.03" in size are removed. That water is clarified and the silt taken out. Slight amounts of alum are used as a settling aid and lime is added to maintain the pH at a neutral point so as to prevent corrosion in the machinery.

★★★ Just how much raw material, water, power and labor are necessary to produce a certain amount of hardboard? The ALLboard process which is employed at the Oregon Lumber Co.'s Dee, Ore. plant requires the following: estimated for 1000 sq. ft. ¼" hardboard—0.75 ton dry slabwood, 2500 gallons of make-up water, 375 kwh electric power, 2500 lbs. of process steam (275 p.s.i.) and five man hours.

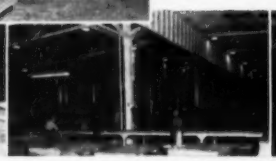
Mass produced . . . *Quality controlled*

Plywood production at Long-Bell's Gardiner, Oregon Mill . . . After being smoothed to perfection on 8-drum sander, panels undergo final inspection.

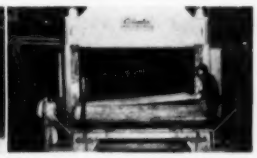


DOUGLAS FIR PLYWOOD

Part of Long-Bell's quality—always standard—is accomplished in the process of equalizing panels.



The correct degree of dryness, for so long such an important factor in quality manufacture, is carefully and scientifically controlled in Long-Bell's dryers.



The pressure's on to turn out the best known plywood panels in the industry. Here one of Long-Bell's hot presses applies the quality-controlled squeeze.

LONG-BELL — FOR QUALITY WOOD PRODUCTS

Your nearest, your most reliable single source for forest products.

LUMBER
West Coast Douglas Fir, Hemlock and Cedar, Ponderosa Pine, White and Douglas Fir, Southern Pine and Hardwoods.

FACTORY PRODUCTS
DOUGLAS FIR: Quality Frames, Industrial Cut Stock, Doors, Kitchen Cabinets, Unpainted Furniture, Prefabricated Building Stock.
PONDEROSA PINE: Quality Frames, Industrial Cut Stock, Sash and Doors, Glazed Sash, Box Shook . . . Varied Products.

PLYWOOD
Douglas Fir and Ponderosa Pine.

OAK FLOORING

PRESERVATIVE TREATED PRODUCTS: Woods, Posts, Poles, and Piling treated with Creosote and Standard Salt Preservatives.

FABRICATED TIMBERS

STRENGTH . . . QUALITY . . . and a **NAME** you can recommend with confidence to your own customers.

Nothing else in wood has the strength and versatility of plywood panels. When the 77-year-old Long-Bell name appears on the product you know you're recommending and selling the best panel falling in the "quality-produced" bracket. Country, small town or city — farm, home or industrial, Douglas Fir and Ponderosa Pine Plywood by Long-Bell are contributing daily to progress, comfort and convenience through the many jobs they are called on to do. Those who demand plywood look for and look to the Long-Bell name!

The Long-Bell Lumber Company

Established 1875 — Kansas City 6, Mo.

EASTERN DIVISION — KANSAS CITY, MO. WESTERN DIVISION — LONGVIEW, WASH.

LONG-BELL Sales Representatives in:

Amarillo, Texas
Ames, Iowa
Billings, Mont.
Buffalo, N. Y.
Cedar Rapids, Iowa
Chicago, Ill.
Chillicothe, Ohio
Columbus, Ohio
Concord, N. C.
Dallas, Texas
Denver, Colo.
DeRidder, La.
Des Moines, Iowa
Eugene, Oregon
El Paso, Texas
Ft. Lauderdale, Fla.
Fort Smith, Ark.
Ft. Worth, Texas
Gardiner, Oregon
Grand Rapids, Mich.
Hoboken, N. J.
Houston, Texas
Indianapolis, Ind.
Joplin, Missouri
Kansas City, Mo.
Kirkwood, Mo.
Lansing, Mich.
Lima, Ohio
Longview, Wash.
Los Angeles, Calif.
Louisville, Ky.
Memphis, Tenn.
Minneapolis, Minn.
Oklahoma City, Okla.
Omaha, Nebr.
Paducah, Ky.
Quitman, Miss.
Roswell, New Mex.
Salt Lake City, Utah
San Antonio, Texas
San Francisco, Calif.
Seattle, Wash.
Sheridan, Ark.
Sioux Falls, S. D.
Sturgis, Mich.
Syracuse, N. Y.
Toledo, Ohio
Tulsa, Okla.
Washington, D. C.
Weed, Calif.
Wichita, Kansas

P&H Diesel Engines

(2-CYCLE)

Can you do this with your diesels?

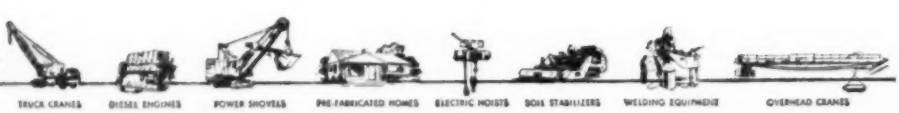
Within just 40 minutes you can remove a cylinder assembly — replace it with a complete new one — and have your P&H Diesel back in service.

No other diesel offers you such amazing speed and simplicity — such protection against costly lay-ups. Think what it can mean to you in time and cost savings — in simpler parts stocks. Where necessary, you can take an assembly from one engine to another . . . good reason in itself for standardizing on P&H Diesels.

This is only one of many advantages you'll find in this advanced line of P&H Diesels. Ask your nearest P&H Diesel representative for complete facts. Or write us.

P&H DIESEL DIVISION
HARNISCHFEGER CORPORATION
CRYSTAL LAKE, ILLINOIS

the P&H *Line*



RED CEDAR SHAKE AND SHINGLE MILLS IN THE U.S.

Compiled by Census Bureau

Date	No. of Active & Idle* Mills	Machines Installed Total Active & Idle
December, 1952	223	
December, 1951	244	559
December, 1950	269	590
December, 1949	280	583
December, 1948	285	590
December, 1947	303	594
December, 1946	239	553
December, 1945	185	516
December, 1944†	159	498
December, 1943†	158	492
December, 1942†	252	652
December, 1941	373	801
December, 1940	382	912
December, 1939 (Shingles Only)	377	
December, 1938 (Shingles Only)	342	

* Idle mills are those which have temporarily suspended operations.

† Does not include machines inactive during the war.

Larch 'Top Species' for Poles

When lodgepole pine poles came into acceptance in late 40s, they were soon followed by acceptance of larch for this same purpose. Although the Western larch was passed up as suitable pole material until very recent years, it's now recognized as a superior species for this specialty use. It has strength characteristics approximating those of Douglas fir and is considered to have decay resistance (in upper portions of boles) approximating that of Western red cedar—which has long been looked upon as the approved, resistant pole species.

Pulpwood Market

(Continued from Page 162)

CONCLUSION

Some significant progress is being made toward closer utilization of woods waste, especially in the West and lately in the South. A market for sawmill waste has been established and is expected to expand within the near future. In all regions, however, any quantitative increase in mill consumption of these two types of wood waste is dependent upon the development of proper equipment and techniques which provide a reasonable profit return for those who handle this residual wood or so-called waste, which up to now could not be utilized in a profitable manner.

PRODUCTION OF RED CEDAR SHINGLES & SHAKES IN THE U.S.

(Compiled by Census Bureau)

Production (in squares)

Years	Shingles	Shakes
1952	2,695,180	175,788
1951	2,825,290	147,984
1950	3,490,614	148,315
1949	2,984,388	103,670
1948	3,315,364	106,519
1947	3,737,704	65,706
1946	3,177,771	29,693
1945	2,838,572	8,459
1944	3,242,699	4,163
1943	3,450,529	2,961
1942	5,007,362	15,264
1941*	5,674,244	.....
1940*	5,791,675	.....
1939	6,210,102	.....
1938	5,891,882	.....
1937	5,279,349	.....

* Includes shakes

Over 150 Tons Chipped Daily at Eugene Plant

One important development in chipping during 1952 was the erection of Longview Fibre Co.'s chipping plant at Eugene, Oregon in April. This plant converts from 150 to 200 tons of bark-free and rot-free wood into pulp chips for manufacture of paper and paperboard products at Longview, Wash., plant of Longfibre, 158 miles distant by rail.

Four to five carloads of chips per day are sent out. Mill waste of all species except cedar and up to eight feet long and 14 inches wide is purchased at the plant.

This modern plant, which requires only two operators, is an excellent example of how present-day timber supplies are being stretched through the applied technology of machinery people and the ingenuity of the forest industries personnel.

The daily saving in logs that is effected by the chipping plant is estimated roughly at 36,000 board feet. The bright spot in this utilization of wood leftovers for many owners is that it formerly cost them thousands of dollars per year just to get rid of it; now they get paid for the so-called "waste."

Railroads Spend $188 Million

Purchases of forest products by the American railroads during 1951 reached a total of $188,186,000, in the following four categories: cross ties, $94,879,000; switch and bridge ties, $27,878,000; timber and lumber, $50,489,000; other forest products, $14,940,000 (From Assoc. of Western Railways.)

Forest products accounted for the *second highest number of carload commodities loaded* by American railroads in 1951. Coal was in first place. Class One railroads purchased over 188 million dollars worth of ties, timbers and other forest products in that period.

Minnesota's Values Leap

An amazing paradox is seen in analyzing the forest industries of the state of Minnesota. Fifty years ago the lumber industry in that state was in its hey-day. In 1904, just barely under two billion board feet of lumber was produced in Minnesota and it had a value of $28,407,920. In 1951, 47 years later, the forest industries' production was valued at $150,148,594. This great increase in wealth is due primarily to development of highly technical manufacturing processes and greatly improved utilization practices.

North Rockies Pole Production Up 19% Over Previous Year

Production of poles in the Northern Rocky Mountain Region (which includes Montana, Idaho north of the Salmon river and six counties of NE Wash.) increased moderately in 1951, latest year for full statistics. About 465,000 poles, 19% more than in 1950, were produced. Increases in Montana and Northern Idaho were 46 and seven per cent, respectively; NE Washington production fell nine per cent. The number of poles in 1951 was still far below the record harvest of 1947, when over 800,000 poles were cut.

Western red cedar poles decreased 11% in amount but still maintained leadership among species, with 41%. Lodgepole was next with 30%, followed by western larch, 27%, and Douglas fir, 2%.

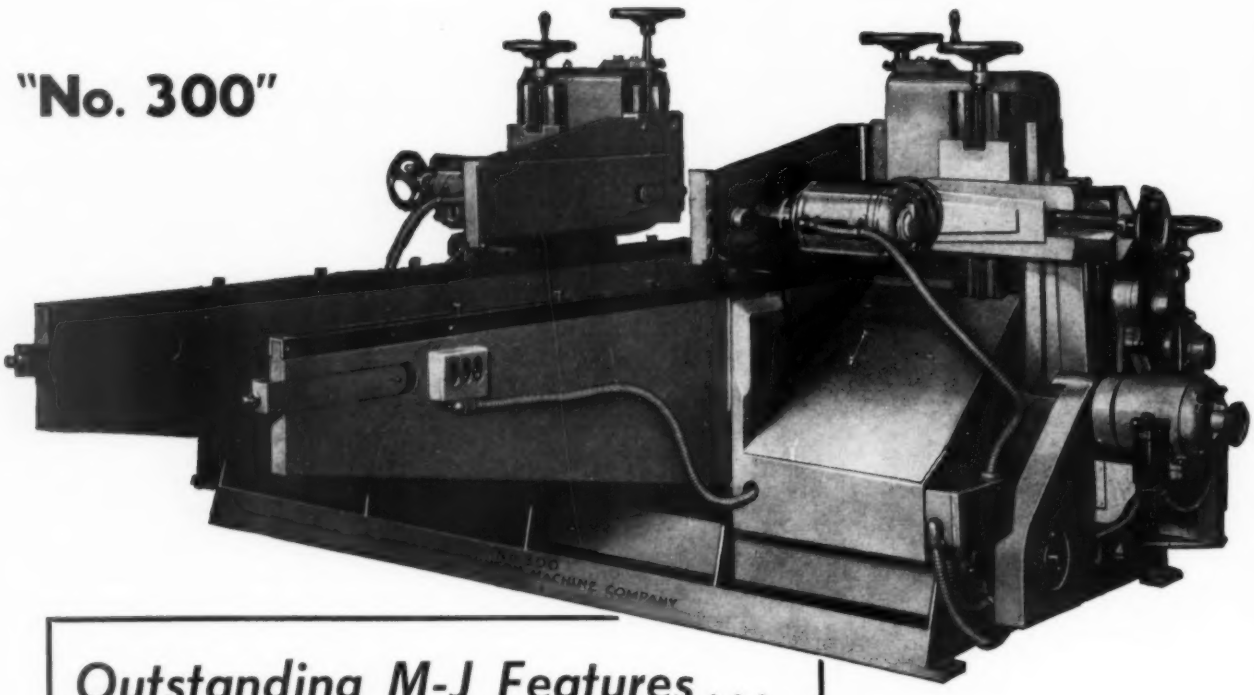
NUMBER OF POLES PRODUCED IN 1951*

Species	Northern Rocky Mountain Region: Montana	North Idaho	Northeast Washington	Total	Percent of total
	Number of pieces				Percent
Western redcedar	21,013	134,040	37,218	192,271	41.3
Lodgepole pine	134,489	41	2,098	136,628	29.4
Western larch	54,789	56,222	15,321	126,332	27.1
Douglas-fir	5,897	3,038	1,181	10,116	2.2
Total	216,188	193,341	55,818	465,347	...
Percent	46.5	41.5	12.0	100.0	100.0

*Figures compiled by Rocky Mountain Pole & Treating Association and released by Northern Rocky Mountain Forest & Range Experiment Station, Missoula, Mont.

Mereen-Johnson DOUBLE CUT-OFF SAW

"No. 300"



Outstanding M-J Features . . .

- Welded Steel Construction
- Snap-On Feed Dogs
- Rubber Block Hold-Downs
- Variable Feed Drive
- Hi-Speed Cope Motors

EXTREME ACCURACY IN LARGE SCALE PRODUCTION

"Continuous accurate work at high rates of feed . . . and with a minimum of operating and maintenance cost." That's what production men say about the streamlined M-J Double Cut-Off Saw.

Here are a few points to consider: All controls are grouped at the operator's natural feeding position . . . individual chain beam adjustment motor with easy reading tape dial . . . built-in hand wheels for quick changes.

A range of sizes are offered to meet different working conditions. The No. 300 can be equipped with cope motors, stationary or jump dado arbor, hi-speed cope motors, or other accessories as required for particular production problems.

Write for Circular No. 300

Mereen-Johnson MACHINE COMPANY

4401 LYNDALE AVENUE NORTH • MINNEAPOLIS 12, MINNESOTA

B. C. Lumber Industry

(Continued from Page 71)

In Canada, rights to cut Crown (government-owned) timber under lease or license have been granted on 15 percent of the total forest land. Some of the unalienated land has also been logged and has reverted to the Crown, but in the main it is located in the inaccessible and less accessible areas. The general policy of the governments has been to dispose of the timber by means of leases and annual licenses to cut, rather than by outright sale of timberland.

Under this system, the government retains ownership of the land and control of the cutting operations. In the Maritime Provinces this policy has not been so rigidly adhered to; in Nova Scotia, for instance, 73 percent of the forest land is privately owned and in New Brunswick about 50 percent. In British Columbia, by contrast, 93 percent of the forest is government-owned.

Mining Industry Big User

The coal and metal mining industries are important users of forest products. A Bureau of Mines study shows that 0.4 board feet of timber is required in the mining of each ton of bituminous coal; 1.3 board feet per ton of anthracite coal; and 2.0 board feet per ton of other metals.

Steady Development in South

(Continued from Page 75)

stocked forest with preferred species aided to dominance but not to the extent of crowding pine into a natural hardwood site or vice versa. Harvesting is along normal economic lines—sawtimber sold to the lumber industry, poles and piling, cross ties, veneer logs, etc., each to its special market, with pulpwood to the paper mill.

Comprehensive forest management programs are the rule rather than the exception among large owners of southern lands. In general these embrace fire suppression with owners opening access woods trails for rapid delivery of fire-fighting crews and equipment to the scene; planting of seedlings on sparse stands or open areas (including abandoned farms) not reseeding naturally; thinning by sanitary cut to remove defective trees or reduce overstocking; and use of poison or girdling to kill non-commercial trees that prevent restocking by desirable species.

Strictly for Profit

CHOOSE CLARK

Solely on the basis of *benefit to your business* take a thoughtful look at the Five Factors of Profit built into Clark machines:

1. **TIME PROFIT**—Materials move faster, and in synchronized flow. Man-hours for loading and unloading are reduced drastically.
2. **SPACE PROFIT**—Idle space becomes profitable storage capacity.
3. **TURN-OVER PROFIT**—Speeding up the production cycle improves the inventory picture, conserves working capital.
4. **MANPOWER PROFIT**—Human productivity is sharply increased to offset shrinking manpower. Workers prefer the better jobs.
5. **SERVICE PROFIT**—Prompt, efficient service, provided by Clark's nationwide organization. *Keeps equipment working.*

Any way you look at it, your Clark investment gets you a solid, profitable "most for your money."

1903 1953 FIRST FIFTY YEARS CLARK EQUIPMENT

CLARK ELECTRIC AND GAS POWERED FORK TRUCKS AND POWERED HAND TRUCKS • INDUSTRIAL TOWING TRACTORS

INDUSTRIAL TRUCK DIVISION • CLARK EQUIPMENT COMPANY • BATTLE CREEK 156, MICHIGAN

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AUTHORIZED CLARK INDUSTRIAL TRUCK PARTS AND SERVICE STATIONS IN STRATEGIC LOCATIONS

Straying from the "Straight-and-Narrow" is their Business

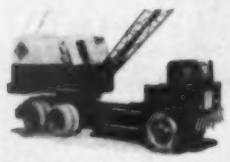
Lima Type 802 crane loading logs for trucking to Collins Pine Mill at Chester, California.

FOR HIGH SPEED MOBILITY

Note also that Lima Types 34 and 604 are available with rubber tired mountings, each made two ways:

Single engine, single operator, for speeds up to 8 MPH (M series)

or



T Series, separate engines for travel and crane operation. Speeds to 31 MPH!

Yes indeed, you don't have to pick your path with a Lima. For example, look at this job in the California woods . . . the Lima Type 802 crawler ignored the condition of the terrain and went all the way into this clearing to load logs right on the spot. This was a cinch for the Type 802 because Lima designed it to fit all ground conditions. There's ample road clearance, also, so it can travel over very rough or uneven ground.

You, too, will find Lima cranes and shovels most dependable and economical for all logging operations. Compare them with any other machines and you'll be sold on Limas with their strong, rigid construction, counterbalanced weight distribution, air controls for easy operation, anti-friction bearings throughout, and many other big advantages.

Wouldn't you like to know which Lima machine fits your needs best? The complete Lima line includes shovels from ¾ to 6-cu. yds., cranes from 17 to 110 tons and draglines variable. Please write to:

LIMA

SHOVELS • CRANES
DRAGLINES • PULLSHOVELS

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
LIMA, OHIO, U.S.A.

Construction Equipment Division

PULP, PLYWOOD ACTIVITY NOTED IN ALASKA

Forest Industries—1953

(Continued from Page 68)

FEDERAL TIMBER CONTRACTS

In its relationships with timber-owning government agencies, which are increasing in number yearly, the industry is more and more concerned as to terms of timber contracts. In fact this subject was one featured at the 1953 Intermountain Logging Conference.

Loggers are more and more concerned with such things as regulations and specifications governing construction of roads on Forest Service lands. Loggers feel that specifications as a rule should not be any higher on Forest Service lands than are practiced on privately owned lands.

RELATIONS WITH HIGHWAY OFFICIALS

Everywhere loggers feel the pressure of state highway officials who seek to impose weight regulations onerous to the logging industry. Great progress has been made, and notably so in 1952, in establishing better relations between log haulers and state officials.

ADVANCE OF TRUCK LOGGING

Practically all logs produced in 1952 were hauled by truck. There is likely no other industry which by force of circumstances has to use the highways as does the logging industry. Such use has brought problems of public relationships. The industry in 1952 took steps aimed to show the public that use of public highways is vital to the loggers and that such use promotes activity, employment and widespread prosperity.

ALASKAN DEVELOPMENT

Alaska, possessing tremendous timber resources, was in the limelight in 1952. Construction started at Ketchikan of what will be one of the largest pulp plants in America. Simultaneously, construction is under way on a large, modern plywood plant at Juneau. This will be the first plywood plant ever built in Alaska.

JAPANESE IN ALASKA

Negotiations were initiated during the year by Japanese looking toward the possible building of a sawmill in Alaska to supply lumber for Japan. Forest Service and State Department officials confirmed the fact that Japanese are interested in Alaska timber but declared the law will prohibit the Japanese from having wholly owned and operated mills in Alaska. The plants will have to be 51 percent owned and operated by Americans.

HOME BUILDING BOOM

Consensus of opinion is that new home starts will embrace the million mark during 1953. In Southern pine circles it is felt that emphasis during the current year will tend toward lower cost units as compared with high priced homes, reflecting general economic tightening up.

HARDWOODS

Hardwoods always have a place in home building and they will participate in that field of construction in 1953. The industry, however, is super-sensitive to its industrial markets—furniture, radio and television cabinets, other manufactured items utilizing wood in parts. The long drying period required by hardwoods presents its own problem to operators who must anticipate the market needs.

COMPETITIVE MATERIALS

The forest products industries are faced with a definite competitive threat from other products, such as glass, metal, plastics and gypsum. Today many segments of the industry must not only gauge production to meet competition, but they must also create a desire on the part of the consumer or user to buy their particular product. This calls for stricter control in management and for intelligent promotion in the selling field.

UTILIZATION

This summary would not be complete without mention of the progress made in better utilization in the forest industries. This utilization has reached the point that in effect it means that a great new wood using industry has arisen on top of what we once knew as the lumber industry.

RESISTANCE TO CONTROL

Attention should be directed to the diligence and continued efforts of lumbermen to resist federal encroachment into private activities. The feeling of the forest industries is clearly set forth in the following statement by the National Lumber Manufacturers association, "Steadily there has been fostered a false concept that all problems must be turned over to the federal government for solution, that private initiative, individual responsibility, and sound legal principles can no longer meet our requirements. Adherence to the principles and fundamentals of competitive private enterprise, with individual initiative and responsiblity, will provide a better and more lasting solution of our economic problems than government regimentation in any form."

Major Southern Sawmills

(Continued from Page 77)

Schneider Brothers, Marquette, Mich.	5,370,000
Oval Lake Dis. Corp., Tupper Lake, N. Y.	4,477,300
Beecher Falls Mfg. Co., Beecher Falls, Vt.	4,471,902
Michigan Pole & Tie Co., Newberry, Mich.	4,475,968
Fisher & Young, Titusville, N. Y.	4,291,337
The John Morgan Lbr. Co., Pittsfield, Pa.	4,000,000
C. B. Norton & Son, Great Valley, N. Y.	3,780,420
N. T. Fox Co., Portland, Me.	3,607,000
Blout Lumber Co., Lacona, N. Y.	3,250,000
A. Mason & Sons, Inc., Peru, N. Y.	3,200,000
Knoke Lumber Co., Appleton, Wis.	3,003,922
The Green Glenn, Inc., DuBois, Pa.	2,400,000
J. C. Campbell Co., Duluth, Minn.	1,500,000

DOUGLAS FIR
VENEER

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COTTAGE GROVE
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Culp Creek, Oregon

assure high-speed production with *Wapakoneta* knives

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Engineered to stand the hard knots of green Douglas Fir, Spruce, Hemlock and other Western timbers in the rough.

FAMOUS BIG CHIEF

THIN HIGH-SPEED KNIVES

The most-dependable knife for general-purpose high-production.

WESTERN REPRESENTATIVES with complete stocks

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California Saw Works

LOS ANGELES 11, California
Zonne Electric Tool Co.

TACOMA 2, Washington
Cliff T. Welsh

PORTLAND 12, Oregon
Wall, Lundberg and Co.

KALISPEL, MONTANA
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395 W. 5th Ave.

The Wapakoneta Machine Company

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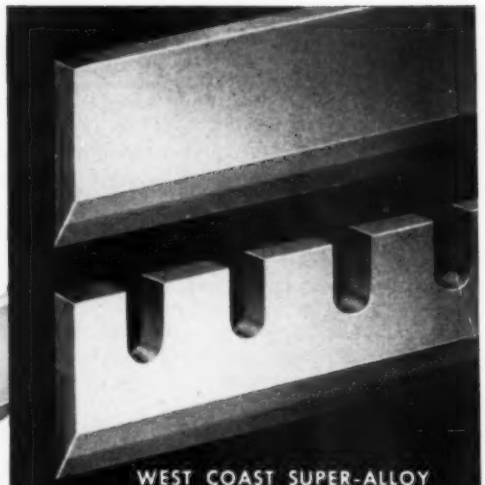
KNIFE SPECIALISTS SINCE 1891



WEST COAST SUPER-ALLOY VENEER KNIVES
Specially designed for the West-coast plywood industry

HIGH-PRODUCTION CHIPPER KNIVES
Produce clean-cut, uniform chips. Tough, solid tool steel, hardened to take heavy feeds, cut in high heat without chipping or cracking.

SUPER-ALLOY 'HOG KNIVES
Solid alloy tool-steel construction makes these tough, long-lasting.

SQUARE EDGE

CORRUGATED BACK KNIVES

BEVELED EDGE SHAPER STEEL

Complete stocks of Square Edge, Corrugated Back Knives and Beveled-edge Shaper Steel always available.

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AMERICAN FOREST PRODUCTS INDUSTRIES

JAMES L. MADDEN, president; Hollingsworth & Whitney Company, Boston.

CHARLES A. GILLETT, managing director

(Photos by Fabian Bachrach)

HDQTRS.—1816 N Street N.W., Washington 6, D.C.
NEXT ANNUAL MEETING—Washington, D. C., (either first week of November or last week of October, 1953).
MAJOR FUNCTIONS—A.F.P.I., Inc., is a non-profit, non-political organization sponsored by the nation's wood processors and forestland owners in the interest of protection and wise management of privately owned, tax-paying woodlands. Its best-known programs are Keep America Green and the American Tree Farm System.

BRITISH COLUMBIA LUMBER MANUFACTURERS ASSOCIATION

A. D. ANDERSON, president; president, Anderson Bros. Lumber Co., Vancouver, B. C.

L. R. ANDREWS, executive vice president.

HDQTRS.—810 West Hastings So., Vancouver.
NEXT ANNUAL MEETING—1954, not announced; meeting just concluded this month in Vancouver.
MAJOR FUNCTIONS—BCLMA, with membership of about 50 of the larger sawmills and shingle mills in the coastal region of B. C., was established in 1900. During the intervening years it has been the industry's principal dominant voice in setting overall policy on marketing, forestry, mill safety, production and public relations.

CALIFORNIA FOREST PROTECTIVE ASSOCIATION

KENNETH SMITH, president; assistant to the president, The Pacific Lumber Co., San Francisco.

W. R. SCHOFIELD, secretary manager.

HDQTRS.—681 Market Street, San Francisco 5.
NEXT ANNUAL MEETING—January 15, 1954.
MAJOR FUNCTIONS—one and only agency representing the redwood and pine timber ownership, before the state legislature, and is recognized as the spokesman for private timber ownership in California by governmental agencies and civic organizations; promotes better forest fire protection and closely checks on policies of public agencies as they affect private timber owners.

CALIFORNIA REDWOOD ASSOCIATION

EARL A. BIRMINGHAM, president; president of Hammond Lumber Co., San Francisco.

PHILIP T. FARNSWORTH, association general manager.

HDQTRS.—576 Sacramento St., San Francisco 11, Calif.
NEXT ANNUAL MEETING—Oct. 7, San Francisco.
MAJOR FUNCTIONS—promotes use of redwood lumber and other woods products of its member companies' mills; supports research and technical division seeking better equipment and procedures in both woods and mills; certified tree farms in the Redwood Region; promotes conservation; and maintains a statistical and grade standardization division.

DOUGLAS FIR PLYWOOD ASSOCIATION

B. V. HANCOCK, president; executive vice president, Cascades Plywood Corp.

W. E. DIFFORD, managing director.

HDQTRS.—Douglas Fir Plywood Association, Tacoma 2, Wash.
NEXT ANNUAL MEETING—May 25-26, Gearhart, Ore.
MAJOR FUNCTIONS—trade association for the 81-factory fir plywood industry of the West Coast. Sole aim is promotion of the sale of Douglas fir plywood, which is affected by quality maintenance in industry grade marking, which serves as the basis for an aggressive program of sales promotion and merchandising, backed up by continuing product research.

INDUSTRIAL FORESTRY ASSOCIATION

E. P. STAMM, chairman of the board; logging manager, Crown Zellerbach Corp., Portland.

W. D. HAGENSTEIN, Forest Engineer.

HDQTRS.—1410 S.W. Morrison St., Portland, Ore. Also, 4444 Stuart Bldg., Seattle, and

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EUGENE, OREGON

Really Rugged... ...Startlingly Smooth..

Collins Bldg., Eugene, Ore., branch offices.

NEXT ANNUAL MEETING—March 27, 1953, Multnomah Hotel, Portland, Ore.

MAJOR FUNCTIONS—Primary activity is promotion of forestry on private land throughout the Douglas fir region, accomplished through the West Coast Tree Farm program by work on forest protection, taxation and management policy and legislation, forestry public relations, and operation of the Forest Industries Tree Nursery, Nisqually, Wash., owned by West Coast Lumbermen's Ass'n. Now in 20th year. Formerly known as the Joint Committee on Forest Conservation of the W. C. L. A. and the Pacific Northwest Loggers Assoc.

INTERMOUNTAIN LOGGING CONFERENCE

JOHN M. ASTON, president; logging supt., Columbia Lumber Co., Kettle Falls, Wash.

CHARLES P. KEIM, secretary-manager.

HDQTRS.—215 Buffalo Block, Kalispell, Montana.

NEXT ANNUAL MEETING—Spokane, Wash, March 1954. Place & date will be decided upon during summer, 1953.

MAJOR FUNCTIONS—To determine and encourage good forestry practices and to establish and improve logging standards and methods; to provide for and encourage interchange of ideas of mutual interest to Conference members through meetings and programs; to promote a spirit of fellowship and cooperative effort among members; to conceive and promote such programs and activities of employee training, logging equipment demonstration and research, public relations, forest conservation and protection as will best serve or meet the needs of the forest industry.

NATIONAL LUMBER MANUFACTURERS ASSOCIATION

RALPH R. MACARTNEY, president, manager of Weyerhaeuser Timber Co., Klamath Falls, Ore.

LEO V. BODINE, executive vice president.

HDQTRS.—1319 Eighteenth St., NW, Washington 6, D. C.

NEXT ANNUAL MEETING—May 25, Battery Park Hotel, Asheville, N. C. (spring meeting); Nov. 2-4, Shoreham Hotel, Washington, D. C. (annual meeting).

MAJOR FUNCTIONS—The purpose of the association is to promote and protect interests of the nation's lumbermen and to encourage greater use of lumber and allied wood products.

NORTHERN HEMLOCK & HARDWOOD MANUFACTURERS ASSOC.

ROBERT LYONS, president; president, Wm. Bonifas Lumber Co., Neenah, Wis.

O. T. SWAN, secretary-manager.

HDQTRS.—Oshkosh, Wis.

MAJOR FUNCTIONS—Promotion and publicity on qualities of Northern hardwoods and softwoods for information of consumers. Research work by the assoc. and in cooperative projects. Inspection service and maintenance of uniform standard grades for lumber products. Transportation department to maintain fair rail rates under just regulation. Makes studies as deemed necessary in the interest of the industry on cutover lands, protection, insurance and various phases of forestry.

OLYMPIC LOGGING CONFERENCE

WALTER KELLY, chairman; manager, Kelly Logging Co., Brinnon, Wash.

OLIVER LATVALA, secretary-treasurer.

HDQTRS.—c/o Mr. Oliver Latvala, Peninsula Plywood Corp., Port Angeles, Wash.

NEXT ANNUAL MEETING—April 23-24, 1953, Empress Hotel, Victoria, B. C.

MAJOR FUNCTIONS—The Conference meets annually in Victoria to discuss important topics of current interest in logging and forestry. The meetings are intended jointly for friendship and good will among the logging fraternity and for exchange of technical information.

PACIFIC LOGGING CONGRESS

CLYDE A. CORMAN, president; Logging Manager, Longview Branch, Weyerhaeuser Timber Co., Longview, Wash.

CARWIN A. WOOLLEY, secretary.

HDQTRS.—1222 American Bank Bldg., Portland 5, Ore.

NEXT ANNUAL MEETING—Nov. 4, 5, 6, 1953, 44th Session & Machinery Show, Civic Auditorium, Seattle, Wash.

MAJOR FUNCTIONS—Founded in 1909, the PLC has devoted its energies to one line of activity only—that of free and open discussions of the operating problems confronting the logging industry, resulting in an international reputation of accomplishment.

PACIFIC NORTHWEST LOGGERS ASSOCIATION

A. H. BRANDIS, president; manager, timber and logging div., Longview Fibre Co., Longview, Wash.

E. T. CLARK, secretary-manager.

HDQTRS.—4465 Stuart Bldg., Seattle 1, Wash.

NEXT ANNUAL MEETING—Sometime in January, 1954.

MAJOR FUNCTIONS—Membership drawn from all divisions of Douglas fir industry in Oregon and Washington engaged in logging, including pulp, paper, lumber, plywood, cedar manufacturing and independent companies. The association works on legislative matters of interest to the forest industry in the two states; works for solution of numerous problems at the industry level, such as safety procedures in the woods; works closely with officials on highway development; promotes reforestation, tree farming and better forest practices; compiles periodic reports on log sales and inventories.

PLYWOOD MANUFACTURERS of BRITISH COLUMBIA

G. H. TULLIDGE, president; sales manager, Western Plywood Co. Ltd., Vancouver, B. C.

J. B. ARMSTRONG, manager.

HDQTRS.—810 West Hastings St., Vancouver, 1, B. C.

NEXT MEETING (Fall)—Not announced.

MAJOR FUNCTIONS—Represents all manufacturers of Douglas fir plywood in Canada. Obtains and standardizes all information about uses and application procedures for plywood; supports the efforts of member companies by advertising, especially in the trade and professional fields, and promotion; through Association research staff of engineers discovers new uses for plywood.

PLYWOOD CUTOFFS WANTED!

CUTOFFS, END TRIMS, STRIPS, SURPLUS INVENTORY & ETC.: ALL SIZES, TYPES & THICKNESSES
ALSO REJECT SHEETS; ALL SIZES & GRADES. (SHEATHING & BETTER)

TOP CASH PRICES, F.O.B. YOUR LOCATION; TRUCKLOAD & CARLOAD QUANTITIES

KAY CLOSEOUT CO., 7 VAN BRUNT ST., BROOKLYN 2, N. Y., MAIN 5-2596

RED CEDAR SHINGLE BUREAU

EARL S. WASSER, president; owner of Rainier Mill Co., Rainier, Ore.

W. W. WOODBRIDGE, secretary-manager.

HDQTRS.—5510 White Building, Seattle 1.

NEXT ANNUAL MEETING—expected to be at Olympic Hotel, Seattle, Wash., either Dec. 4 or 11, 1953.

MAJOR FUNCTIONS—inspection of shingles at all member mills and the promotion of red cedar shingles through such media as advertising, movies, literature, exhibits and displays and through staff of traveling field representatives. "Certigrade" is trademark of member mills.

SIERRA-CASCADE LOGGING CONFERENCE

JAMES GARRETT, president; logging manager, Collins Pine Co., Chester, Calif. (Henry Ghiglieri of J. T. McDonald Log. Co., Redding, Calif., will be new pres., Apr. 15).

JACK S. BERRY, secretary-treasurer; wholesale lumber, Sacramento, Calif.

HDQTRS.—3535 Las Posas Way, Sacramento 19, Calif.

NEXT ANNUAL MEETING—No date set. Expected to be in February, 1954, at Redding, Calif.

MAJOR FUNCTIONS—A Division of the Pacific Logging Congress for the Sierra-Cascade area, the pine region of Rogue River and Klamath Basin, Oregon, and all of California. Provides medium of exchange for all engaged in logging and forestry and their associates, promotes progress in logging practices and forestry and carries out the motto, "For Good Will and Good Logging."

Irvington Trimmers For New Kirby Plant

The Kirby Lumber Co., Houston, Tex., recently purchased two Irvington Automatic random length trimmers for installation in their new multi-million dollar mill at Silsbee, Texas. The Kirby organization, in this huge modernization program, has consolidated the operations of four mills under one roof. All the random length trimmers at this Southern plant are Irvington units, manufactured by the Irvington Machine Works of Portland, Ore.

SOUTHERN PLYWOOD MANUFACTURERS ASSOCIATION

VERNON L. TOUSSAINT, president; president and general manager, Perry County Plywood Corp., Beaumont, Miss.

JOHN L. BUTLER, acting managing director.

HDQTRS.—65 Peachtree Place, N.E., Atlanta, Georgia.
NEXT ANNUAL MEETING—Early May, 1953, place unannounced.
MAJOR FUNCTIONS—The Association is composed principally of manufacturers of southern hardwood plywood stock panels joined together for the purpose of developing uniform quality and practices in production, to represent their industry in connection with establishment and maintenance of national commercial standards, and to cooperate with the government in matters pertaining to national defense effort.

SOUTHERN PINE ASSOCIATION

J. R. BEMIS, president; pres. Ozan Lbr. Co., Prescott, Ark.

H. C. BERCKES, executive vice president.

HDQTRS.—520 National Bank of Commerce Bldg., New Orleans, La.
NEXT ANNUAL MEETING—April 8-10, New Orleans.
MAJOR FUNCTIONS—represents Southern pine manufacturers over a 12-state area. Subscribers to the assoc. receive services on mechanical efficiency, traffic, trade promotion, statistics, labor information and forestry.

WEST COAST LUMBERMEN'S ASSOCIATION

HILLMAN LUEDDEMANN, president; vice president and general manager of lumber division

H. V. SIMPSON, executive vice president.

of Pope & Talbot, Inc., Portland, Ore.

HDQTRS.—1410 S.W. Morrison St., Portland 5.
NEXT ANNUAL MEETING—March 26-27, 1953, Multnomah Hotel, Portland, Ore.
MAJOR FUNCTIONS—trade promotion and meeting problems member mills cannot meet alone; membership covers Douglas fir region of Western Oregon and Washington and Northern California; handles national advertising for member mills, technical services, visual education, traffic, statistics. Branch offices in Washington, D. C., Seattle, Eugene, Medford and Los Angeles.

WESTERN FORESTRY & CONSERVATION ASSOCIATION

E. T. F. WOHLENBERG, president; vice president and general manager, Masonite Corp., Ukiah, Cal.

STUART MOIR, forest counsel and managing director.

HDQTRS.—712 U. S. National Bank Bldg., Portland 4, Ore.
NEXT ANNUAL MEETING—44th Western forestry conference, Dec. 9-12, 1953, Olympic Hotel (hdqtrs.), Seattle, Wash.
MAJOR FUNCTIONS—sphere of activity includes 10 Western states and the Western provinces of Canada. Through several active committees, it works on problems of protection, improvement of forest practices, encourages growing trees as a crop, studies and analyzes all phases of forest management with the objective of securing the Western forestry future. Includes private, state, and governmental forces.

WESTERN PINE ASSOCIATION

U. R. ARMSTRONG, president; vice-president, production, Hollack & Howard Lumber Co., Winchester, Idaho. Elected March 9. Not pictured.

S. V. FULLAWAY, Jr. —secretary - manager (right).

HDQTRS.—Yeon Bldg., Portland 4, Ore.
NEXT ANNUAL MEETING—early March, 1954.
MAJOR FUNCTIONS—provides following services for its 311 members in 12 Western states: forest conservation counsel and representation; lumber inspection and reinspection; product promotion; laboratory and field research and advice on wood chemistry, technology and production problems; industry statistics and traffic facts and representation.

WILLAMETTE VALLEY LOGGING CONFERENCE

WILFRED LAIRD, president; Griffey & Laird Logging Co., McKinley, Ore.

A. D. McREYNOLDS, secretary; Forestry & Logging Manager, Giustina Bros. Lumber Co., Eugene, Ore.

HDQTRS.—Osburn Hotel, Eugene, Ore.
NEXT ANNUAL MEETING—April 23-25, 1953, Fairgrounds, Eugene, Ore.
MAJOR FUNCTIONS—Annual session and machinery show, held traditionally in Eugene, brings together loggers, lumbermen and foresters from the Willamette Valley for discussion of pertinent topics on all phases of the industry, such as management problems, equipment operation, machinery development, highway use, and timber contracts.

LEADERSHIP IN THE PLANER MATCHER FIELD SINCE 1907

This Trade Mark

ON MACHINES IN YOUR PLANT MEANS

HIGHEST PRODUCTION
MAXIMUM QUALITY
LOWEST PRODUCTION COST

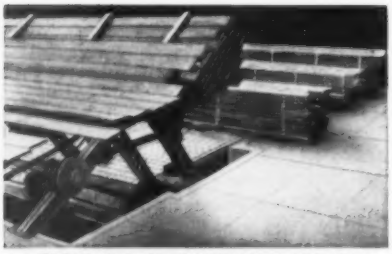
THE most profitable planing mills in operation today are those planned for continuous straight-line production and minimum lumber handling. The heart of such a production line is a quick-change, fast feed modern planer and matcher that produces finely machined lumber—and does it a full 8 hours per shift. There is no place in *today's* planing mill for the machine that ties up production a half hour or more each time a pattern is changed.

New machine developments during the last 20 to 25 years have made the equipment of an earlier era obsolete—*obsolete long before it is worn out.*

If you are using ancient machines in your planing mill just because they aren't *worn out* yet, we suggest that you honestly compare the equipment you are now using with the available new equipment on the market. Then, determine how much this obsolescence is actually costing you.

We believe you will be agreeably surprised at the many *years-ahead* features found in Stetson-Ross cost-reducing planing mill machines.

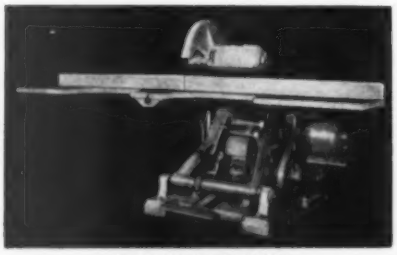
You are invited to submit planing, trimming or handling problems for our recommendations without obligation. FREE ON REQUEST: *Your copy of "A B C's of Planing Mill Layout."*



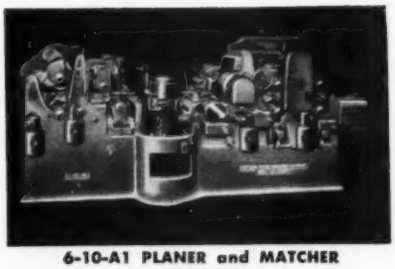
TRAVELING APRON DECK-CONVEYOR
603-E UNLOADER HOIST

T-33 RANDOM LENGTH TRIMMER
with built-in top and bottom dust removal system

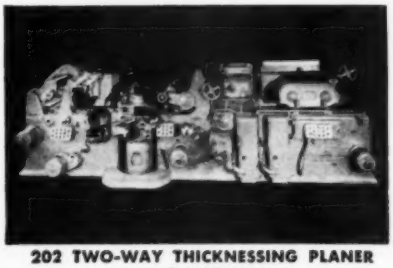
WT-65 AUTOMATIC BUNDLE TRIMMER



T-18 CUT-OFF SAW

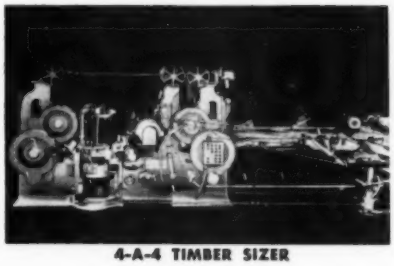


6-10-A1 PLANER and MATCHER
(8 Knife)

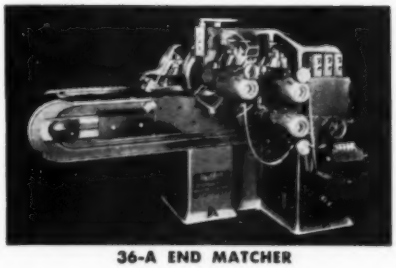


202 TWO-WAY THICKNESSING PLANER and MATCHER
(14 Knife)

6-12-C1 PLANER AND MATCHER
(14 or 16 Knife)



4-A-4 TIMBER SIZER



36-A END MATCHER

STETSON-ROSS MACHINE COMPANY
SEATTLE 4, WASHINGTON

EXPORT DIVISION: 301 CLAY ST., SAN FRANCISCO 11, CALIFORNIA

World Report Section

AN AERIAL PANORAMA of Kaingaroa Forest, New Zealand, showing roads and fire breaks

NEW ZEALAND

Future Forest Economy Based on Exotic Trees

Total area forest land.....24,828 square miles
Percentage of total land area....24.3
Lumber output (1950-51)...525 million board feet
Value of home-grown wood output (1951).....$12,500,000
Value of timber imports..$2,400,000
Value of imports of wood derivatives, pulp, paper, veneers, etc.....$15,900,000
Plywood production.....30 million square feet

There has been a remarkable increase, exceeding expectations, in the output of sawn timber in New Zealand, and this continues to be by far the most important product derived from the country's forests; pulp and paper are being given more attention and significant developments in that field are under way.

OUR THANKS

The Food and Agricultural Organization of the United Nations has been especially helpful in supplying recent production figures, and the United States Department of Commerce in Washington and its field office in Seattle, Wash., graciously offered their files and facilities for this World Report Section. THE LUMBERMAN wishes to thank them for this service.

The volume of standing timber and increment in exploitable forest at the end of 1950 was as follows:

STANDING TIMBER

(Provisional estimates; thousands of cubic feet I.B.)

Class of Forest and Timber	Volume Total	Net Annual Increment Total
STATE		
(i) *Softwoods*		
Exotic	1,127,000	56,360
Indigenous	667,000	Nil
Total	1,794,000	56,360
(ii) *Hardwoods*	117,000	Nil
Total	1,911,000	56,360
COMMUNAL		
Exotic softwoods	96,000	4,800
PRIVATE		
(i) *Softwoods*		
Exotic	1,568,000	78,400
Indigenous	166,000	Nil
Total	1,734,000	78,400
(ii) *Hardwoods*	50,000	Nil
Total	1,784,000	78,400
Grand Total	3,791,000	139,560

After World War II the N. Z. government realized that greatly increased quantities of lumber would be required for anticipated housing expansion, and to attract labor to the relatively remote sawmills the government introduced a timber workers' housing scheme and subsidized those mills paying overtime wages. Production of sawn timber has risen from 354 million board feet in 1946-47 to 525 million board feet in 1950-51, this being 60 percent higher than the highest in any year before the war. Most of the increase came from mills sawing exotic timber. Before the war, output of exotic timber was only 40 million board feet, but in 1950-51 it reached 193 million board feet.

Structural Timbers Imported

Total value of home-grown wood produced in 1950-51 from state forests was about $5,820,000, from private forests about $6,10[illegible],000. Production of softwoods was valued at 4,349,000 pounds sterling, of hardwoods, 257,000 pounds sterling.

New Zealand depends to only a minor extent on imports, mostly in the form of railroad ties, poles and piles from Australia, and softwoods in large structural sizes from Canada and the U.S. Export of New Zealand softwood, mostly Pinus radiata introduced originally from California (Monterey pine), to Australia in return for hardwood, has been increasing. Establishment of more large mills in the exotic forests of such species as Pinus radiata will bring about a great expansion of export trade in wood and wood products. Indigenous timber has all but vanished from the export market and is unlikely ever again to be exported in quantity.

Kinleith To Be Great Center

Bulk of New Zealand's pulp and paper products has to be imported, but N.Z. Forest Products, Ltd., of Penrose, which has been an important producer of lumber for years, is now producing kraft paper and board for a variety of uses and has plans for producing newsprint. Another company, Tasman Pulp & Paper Co., plans to start construction of pulp and paper mills this year, utilizing wood from Kaingaroa State Forest.

N.Z. Forest Products is developing at Kinleith the site of the greatest timber utilization project in the

are engineered to make light work of tough jobs

Why do so many loggers count on Cummins for dependable power in toughest going?

You'll find part of the answer in the special kind of versatility that belongs to Cummins Diesels alone. It's versatility that goes beyond the handling of all kinds of jobs. It's actually an ability to meet every power requirement that any situation demands . . . to save on fuel, do more work per dollar, whether the call is for continuous power or stop-and-go operation over a wide and flexible speed range.

Yes, you can count on a (60-600 h.p.) Cummins Diesel for dynamic versatility in every job — performance that stems from an exclusive fuel system and precision engineering. See your Cummins dealer for all the facts. He's a diesel specialist . . . ready to help solve your power problems.

Leaders in rugged, lightweight high-speed diesel power!

CUMMINS

CUMMINS ENGINE COMPANY, INC.
Columbus, Indiana
Export: CUMMINS DIESEL EXPORT CORPORATION
Columbus, Indiana, U.S.A. Cable: CUMDIEX

Southern hemisphere. Kinleith is strategically located in the center of the company's 176,000 acres of exotic pine forests. Ultimately, over 1,500 people will be employed by the company around Kinleith, engaged in the kraft pulp and paper mills now approaching completion. The company has a modern sawmill at Kinleith using Soderhamn Swedish gang mills for handling medium-sized logs producing about 90,000 board feet daily in two shifts, and Klamath Iron Works bandsaw handling the larger logs at the rate of about 180,000 board feet daily. (See THE LUMBERMAN, January, 1953, p.72.)

Plywood Production Low

Employment in New Zealand's forest industries has been at a high level, and consumption of wood and wood products kept pace with the supply in the years 1946-51.

There were 722 sawmills operating in 1951, with the industry steadily growing. Several large mills have been established during the last five years and it is expected that building of new mills during the next two or three years will bring the country's capacity to about 625 million feet annually. Local production of plywood has not been sufficient to meet the demand.

Two new products in the wallboard field were recently announced by N.Z. Forest Products. These are Pinex "Decor" board and Pinex 3/16 in. hardboard. "Decor" board consists of hardboard or pressed wood with a lacquer coating divided into 4 in. square tiles and is recommended for use in all places where a high finish is required. The 3/16 in. board has the tough, adaptable properties of the 1/8 in. hardboard but with increased strength qualities required for special work such as interior heavy duty lining.

Use of Exotics Expanding

It is estimated that the native softwood forests will be exhausted in about 20 years. While there are still considerable areas of indigenous forest available for exploitation there are also extensive exotic stands which have reached the stage of utilization. Most of the indigenous forest is owned by the state and it is being rationed to sawmills in order to prevent early depletion of the remaining stands. The main function of the exotic forests today is to offset the decline in the indigenous forest resources. It is in the exotic forests that the major expansion in utilization is taking place.

In the exotic forests the trend has been towards installation of gang frames for the sawing of relatively small-diameter logs. There has been a steady movement towards integration of forest industries, but so far without spectacular development except for N.Z. Forest Industries and the planned Kiangaroa project in which the government is working in co-operation with Tasman Pulp & Paper Co. This will utilize about 28 million cubic feet of wood a year initially. Sir James Fletcher is managing director, with A. R. Entrican, director of forestry for New Zealand, representing the state. Sandwell & Co. and C. D. Schultz & Co., both of Vancouver, B.C., have been doing the engineering and forest surveys, respectively

Mill and Trade Combined

Mr. Entrican reports that postwar shortage of timber in New Zealand has forced timber merchants and builders into sawmilling to safeguard themselves. Where sawmilling, merchandising and building used to be separate enterprises before the war, many of them are now combined.

Douglas fir, European larch and Corsican pine grown in New Zealand are among the new timbers on the market, while tawa and indigenous beeches are species for which a new place and wider range of uses have been developed.

Stand of Pinus radiata, 25 years old, Kaingaroa Forest, New Zealand. This species' common name is Monterey pine, a few small patches of which still survive on the coast of California, U. S. A. This tree is noted for its rapid growth and fine form and has also been successfully introduced into Australia, South Africa and Italy, all regions with meager rainfall.

CONVERSION FACTORS

For converting some of the figures in this section to American equivalents, the following factors are presented:

Round Wood

1 cubic meter roundwood = 221 bd. ft.

Processed Wood

1 standard sawn lumber = 1,980 bd. ft.
1 cubic meter sawn lumber = 424 bd. ft.
1 cubic meter sawn lumber = 35.3 cu. ft.
1 cubic meter plywood = 1130 sq. ft. 3/8" basis

Solid Volume of Sawlogs

1 cubic meter sawlog volume = 254 bd. ft. solid sawn volume

Waipa Forest Service sawmill set in Whakarewarewa State Forest, Rotorua, New Zealand

A heavy-duty logging truck on a forest road transporting Pinus radiata logs to Waipa sawmill.

AUSTRALIA

Sawmill Output Larger Every Year Since War

Total forest area.20,000 square miles
Percentage of total land area....5.4
Value of production (at railhead or skid).....$60,750,000
Sawmill capacity.....300 million cubic feet
Plywood mill utilization.....7 million cubic feet of logs
Pulp mill wood utilization....30 million cubic feet

Although Australia's size is about thirty times that of New Zealand, the country actually has less land in commercial forest than its sister dominion.

Australia's economic strength, of course, has been derived primarily from wool, grain and metals, but there have been significant developments in the forest industry in recent years, according to B. H. Bednall, conservator of forests for South Australia, who believes that Australia is potentially capable of greatly reducing if not entirely eliminating dependence on overseas supplies of timber and wood products.

Output from Australia's forests has increased each year since World War II, although the rate of increase has slackened during the past two years. Production in 1950, however, was about 22 percent greater than in 1945 and over 50 percent above prewar.

Hardwoods are predominantly of the genus Eucalyptus of about sixty varieties, the most prominent being jarrah, karri, blackbutt and spotted gum. Hoop pine is the main indigenous softwood. Plantation forests are principally of Pinus radiata. Value of hardwood production at railhead last year was about seven times that of softwood.

N. America Imports Fall

Since 1945 imports of timber to Australia rose from about 11 million cubic feet in the round to nearly 38 million cubic feet. Owing to exchange difficulties, imports from North America the major source in the past, were little more in 1950 than in 1945, and Australian importers were obliged to obtain the balance of essential requirements from the sterling area. As a result, the percentage of total imports from North America fell from 92 in 1946 to 51 in 1949 and to 34 in 1950. Nevertheless, imports from Canada and the U.S., mainly Douglas fir, hemlock and western cedar, have been of considerable value. Thirty eight percent of all Australia's wood imports in 1950 were from Scandinavia. New Zealand and Brazil (parana pine) have also contributed.

Australia's wood exports, never of large proportions, have been chiefly of railroad ties to New Zealand, but 38 percent of the commonwealth's total wood exports were absorbed by the United Kingdom.

About 125,000 persons were engaged in the forest industries in 1950, 35,000 more than in 1946. There are about 2,800 sawmills, employing 66,000.

Board Use Takes Jump

Consumption of fibreboard has multiplied five times since the war, and plywood consumption has increased steadily from about 100 million square feet 3/16-inch basis to about 170 million square feet in 1950. Increase in use of pulpwood has been insignificant because of difficulty in purchase of new machinery to increase plant capacity.

WESTERN AUSTRALIA — The whole economy of the industry in this state has been built up on export trade demanding timber in large dimensions, and mills have been designed to that end. An important development in waste wood use is destructive distillation of jarrah in conjunction with a charcoal iron industry yielding chiefly acetic acid and methanol. Sawdust is used in mill boilers.

Most of the falling in Western Australian forests of hardwood is still done by hand with axe and crosscut saws, but circular power saws have been used for some years in the Wandoo areas where the logs are generally small in diameter. Some sawmillers are using these power saws with success in the larger timber of the southern areas. Chain saws have so far been used with indifferent success, the difficulty being to get a suitable type of chain, but experiments are continuing.

Loghauling in 'Transition'

Heavy track-type tractors of 80 to 120 H.P. equipped with logging winch and some sort of logging arch are used in the woods, and ground "snigging" is resorted to in winter. Some of the larger mills operate railroads using steam locomotives; others, including smaller mills, use trucks, some carrying 40 ton loads. Log hauling is in the transition stage between rail and road transport.

Hardwoods were originally used extensively for railroad ties and fruit cases, but owing to the deficiency of these species the trend has been to divert the available wood to other purposes of greater economic importance.

Breast benches are largely used instead of gang edgers in the sawmills because they deal more easily with faulty and irregular timber. The bench is provided with power feed rollers.

QUEENSLAND—This state has in the past been self-contained in its timber requirements, with small interstate export in special lines. Logs from Borneo for plywood production are being brought in on a small scale. Integrated utilization has not yet made much progress.

NEW SOUTH WALES — Chief limiting factors in sawmill expansion have been: (1) Lack of adequate transport facilities, both rail and coastal shipping, (2) Shortage of tractors and motor trucks, (3) Manpower shortage, (4) Accessibility of log supplies. Extraction methods in the forest have become quite fully mechanized, with general use of tractors, logging arches and winch gear. Improved reticulation of electric power has led to increased elec-

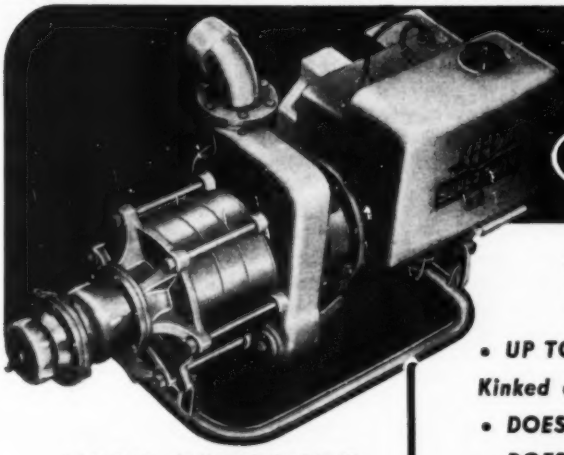
AUSTRALIAN PINE NURSERY. These seedlings are 1,0 stock ready for planting out by machine. The seed is sown in early spring, weeded continually through summer, root wrenched in autumn and ready for planting in winter as sturdy stock, 12-18" high.

HARVESTING TIMBER in mixed Eucalypt forests in Australia. Trees are felled by either hand crosscuts or chain saws and the logs are "snigged" to landings for conversion into six-foot billets by dragsaws. Hammer and wedges are used to split the easier logs; powder guns are used to split the more refractory logs.

trification of larger mills, although many smaller plants use diesel or steam. Although twin and vertical frame saw units have been much used to cope with the large diameter hardwoods in coastal zones, the average log is now much smaller than in the past and more attention will have to be given to small mill design in the interests of improved utilization and economy in operation. Sawdust is the main component of a new type of all-purpose building board now being produced in the state, utilizing material previously wasted.

TASMANIA—The main trend in logging during the last five years has been towards improved tractor "snigging" (yarding) from stump to landing and truck hauling from the woods to mill skids. Truck logging has been aided by expansion of road networks by the industry and the Forestry Commission. There has been a marked tendency towards centralization, the sawmills being grouped around the townsite and supplied with logs trucked many miles from the forest. There has been little change in milling technique, except in use of band saws to a limited extent.

VICTORIA — Major product of Victorian forests is mill logs. Concentration of mills close to log supply has been encouraged with a view to encouraging economic development of associated wood-using industries as well as improving living conditions for personnel, but all new sawmills are required to be located outside the forest boundary. The industry, operating on mountain type forests, mostly virgin, produces primarily high-grade seasoning quality timber, and in the mixed foothills forest of the stringybark type, chiefly scantling and case timber. Felling



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and yarding are usually on a contract basis, the trees to be felled being marked by a forest officer. Labor shortage has retarded the projected siftwood reforestation program, which contemplated the planting of 5000 acres annually. Management of the state's coniferous plantations has been on the basis of clear cutting on an average rotation of 30-35 years for the principal species, Pinus radiata.

CANADA

Canadian Industries Boom in East and West

Total forest area.....1,299,759 square miles
Softwood forest.392,400 square miles
Hardwood area . 104,967 square miles
Mixed wood area.....215,085 square miles
Non-productive forest .....587,307 square miles
Percentage of forest to vital area.37.1
Output of home-grown wood (1950). 3,039 million cubic feet (softwood) 283 million cubic feet (hardwood)
Total value of forest (exclusive of manufactured products).$681,000,000

Canada's forest area is second only to that of Soviet Russia and in spite of the tremendous demands of the lumber, pulp and paper and related industries and heavy losses from fire, insects and tree diseases, productivity of the forest has not been seriously impaired.

All Canadian forest industries are operating at or close to capacity, and manufacturing facilities are being constantly expanded and improved. The past few years have witnessed great and efficient over-all utilization of the forest resource and of the individual species.

In the Eastern provinces the forests are utilized mainly for the production of pulpwood for the rapidly growing newsprint and pulp and paper industries. Canada leads the world in the production of newsprint. Most of the technical improvements in the east have been towards mechanization of logging, better transportation methods, and a general increase in the efficiency and productivity of the pulp and paper mills.

Volume of Merchantable Timber
In Millions of Cubic Feet

Species	Accessible	Inaccessible	Total
White pine	2,633	141	2,774
Red pine	283	.....	283
Jack and lodgepole pines	26,026	22,974	49,000
Larch	646	286	932
Spruce	64,263	40,392	104,655
Balsam fir	22,944	22,079	45,023
Hemlock	5,614	6,802	12,416
Cedar	5,802	4,796	10,598
Douglas fir	5,256	5,708	10,964
Ponderosa pine	411	306	717
Yellow cedar	267	298	565
Total Softwoods	134,145	103,782	237,927
Yellow birch	6,433	.....	6,433
White birch	19,145	3,781	22,926
Maple	6,449	.....	6,449
Beech	1,900	.....	1,900
Basswood	240	.....	240
Ash	392	.....	392
Elm	191	.....	191
Oak	53	.....	53
Poplar	24,113	7,486	31,599
Other Hardwoods	169	.....	169
Total Hardwoods*	59,085	11,267	70,352
Total all species	193,230	115,049	308,279

* Hardwood estimate for Newfoundland not available.

Over 360,000 Employed

Canada's forest industries employ more than 360,000 persons and they yield the largest amount of foreign exchange, through exports, of any industrial group in the nation. The Canadian forests extend from Newfoundland on the Atlantic coast to the Queen Charlotte Islands on the Pacific. The principal producing provinces are Quebec and Ontario, the Maritimes (Nova Scotia, Prince Edward Island, New Brunswick) Manitoba and British Columbia. Softwoods comprise 47.2 percent of the accessible forest; mixed woods 36.4 percent, and hardwood 16.4 percent.

Inaccessible forests, 228,000 square miles in extent, constitute a reserve for the future. Private individuals or corporations own only 7 percent of the total forest lands of Canada, the remainder being in the possession of the federal or provincial governments.

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→ DECK over CONVEYOR → LOSS of SPEED

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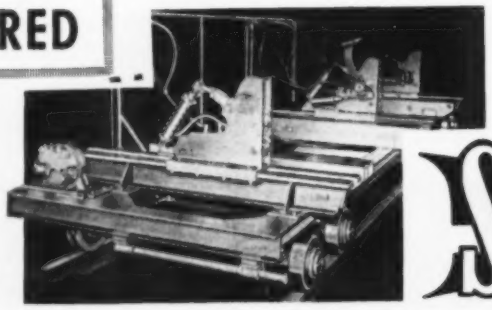

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LOADING BLACK SPRUCE LOGS at Camp 5 of Spruce Falls Power & Paper Co. north of Kapuskasing, Ontario, Canada, using Caterpillar D17 tractor equipped with Hystaway with 30-foot boom, loading logs on a specially built trailer.

Primary wood products cut from Canadian forests in 1950 were estimated to total over 3,322 million cubic feet—a record volume. This figure is 54 percent above the prewar annual average rate, 29 percent above the wartime figure, and 7 percent above the postwar annual average rate of utilization. Total depletion in 1950 amounted to 3,982 million cubic feet.

These statistics give an idea of the economic importance of the forest to Canada:

Values in Millions of Dollars

Industry	Number of Employees	Salaries and Wages	Net Value of Production	Gross Value of Production
Woods operations	150,000	398	553	690
Lumber industry	60,000	115	223	493
Pulp and paper mills	52,343	169	511	954
Wood-using industries	69,043	137	240	507
Paper-using industries	25,179	56	125	294
Total	356,565	875	1,652	....

East of the Rocky Mountains, logging operations are generally carried on by individual lumber and pulp and paper companies. The latter obtain a moderate proportion of their requirements from independent pulpwood loggers.

Approximately 16 percent of the country's lumber was sawn in Quebec, 14 percent in Ontario and 53 percent in British Columbia, where most of the large sawmills are located. This is significant, and indicates a fundamental difference in sawmilling practice east and west of the Rockies. The large trees found in British Columbia and the rugged character of the land in which they grow have necessitated specialized mechanical developments in order that the logs might be handled effiicently. Output of the

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Canadian lumber industry in 1950 comprised 6,500 million board feet of lumber, 4,400 thousand ties, 3.1 million squares of shingles and 114 million lath, besides other products such as box shooks, staves and mine timbers. Gross value of all these products has exceeded $500 million.

B. C.'s Pulp Production Up

Outstanding among all Canada's manufacturing industries, production of pulp and paper leads in net and gross value, in total wages and salaries paid, and in expenditures on raw materials, fuel and electricity. Quebec leads with about half the nation's total. British Columbia's rise in pulp and paper production has been the most spectacular in recent years, having risen from 467,247 tons in 1940 to approximately 1,000,000 tons in 1952.

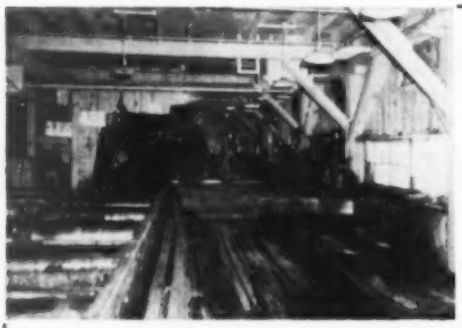
Total production of all grades of pulp in 1951 amounted to 9.6 million tons; gross value approximately $1.2 billion. Canadian newsprint production exceeds 5.5 million tons, shipments to the U.S. totalling 4.7 million tons.

Logging methods in the Eastern provinces have changed considerably during the past decade, marked by the introduction of power saws, trucks and trailers, tractors and diesel-powered cranes, loading and unloading equipment. Among the larger companies which have made the largest contribution towards advanced wood-handling technique may be mentioned Bowater's Newfoundland Pulp & Paper, which has an extensive transportation system including the use of trucks, barges and deepsea rafts to deliver pulpwood to its mills at Corner Brook; Anglo-Canadian Pulp & Paper Mills, which has pioneered at Forestville the creation of permanent woods communities to replace the seasonal woods camps; Spruce Falls Power & Paper Co., whose farspread logging operations in the black spruce areas of Northern Ontario feed the pulp and paper mills at Kapuskasing; Marathon Paper Mills of Canada which has used mechanized equipment extensively at Stevens and Caramat in the woods north of Lake Superior; Canadian International Paper Co., which has developed log-haul trucking over the height of land from the regions draining into Hudson Bay, and Quebec North Shore Paper Co. and Ontario Paper Co.

PULPWOOD LOGGING IN EASTERN CANADA. "Jeep" hauling skids or sulkies loaded with four or six foot logs for pulp are employed by several Eastern Canadian companies, such as Quebec North Shore Paper Co.

PRODUCTION STATISTICS OF FOREIGN COUNTRIES

Most foreign countries of the world do not have such complete facilities for collecting data on forest industries production as does the U.S. For this reason many timber, lumber, plywood and other production figures in this World Report Section must be regarded as approximations rather than as the actual, final production. In general the figures given are the latest full-year statistics from the most reliable sources available.


A select redwood log is shown here on the sawmill carriage at Rockport, being made into quality lumber.

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UNITED KINGDOM

EUROPE

Total forest area..5,792 square miles
Percentage of total area.....6.6
Volume of standing timber.....4,200 million cubic feet (Softwood, 1,417 million cubic feet; hardwood, 2,784 million cubic feet)
Imports of wood primary products.....417 million cubic feet
Value of imported wood primary products $242,000,000
Value of imported derivation wood products, mostly pulp.$125,000,000 (Veneer, plywood, veneer imports $30,000,000)

From the standpoint of the world's forest industry, the United Kingdom is famous as the greatest of all lumber importers, but from the dawn of history Britain has been proud of its own sources of timber, and these have served the nation well, especially during wartime.

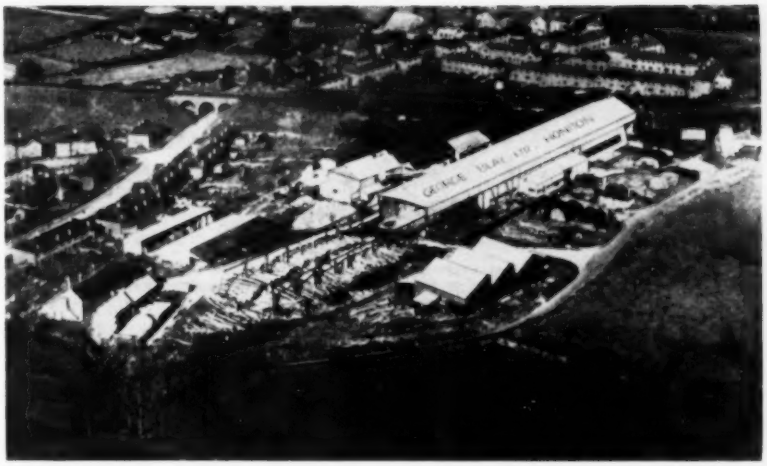
The area of state forests has been steadily increasing through planting and also by acquisition from private owners of woodlands and felled or devastated areas. State forests now cover over 1,180 square miles; private forests, 4,612 square miles. The whole of Britain's forest area is regarded as exploitable, including 2,031 square miles of coniferous softwoods, 556 square miles of mixed woods and 3,205 square miles of broadleaved hardwoods.

Output of home-grown wood, which in wartime had attained a peak of 333 million cubic feet, had by 1945 fallen to 224 million cubic feet, and from then on there has been a downward trend. The total in 1950 was 89 million cubic feet, most of the decline being in softwoods. One notable feature of postwar production has been increase in volume and importance of the material derived from silvicultural thinning of plantations. The state has also encouraged thinning of young plantations of private woodlands, through sudsidy.

Canada Trade Reduced

Imports of wood products have been sharply curtailed in recent years owing to exchange difficulties, but potentially the United Kingdom market continues to be important to North America as well as to exporting countries in Europe and Africa.

Financial considerations have interrupted Canadian trade to some extent in recent years, even though the United Kingdom continues to be regarded as one of the mainstays of Canada's overseas lumber trade.



ONE OF THE MOST MODERN SAWMILLS in the United Kingdom is the electrically-powered plant of George Blay, Ltd., at Honiton, Devon, managed by J. R. Maeer. The yard and mill are intersected with concrete roads and the whole operation extends over five acres. Home grown timber, mainly hardwood, is cut at this mill. Included in the equipment are a 63" band mill, a 60" all-electric log bandmill, three 44" band rack and band push machines, various crosscut and trimming saw benches.

Largely due to exchange problems, Britain has been buying hardwoods heavily in Africa. Plywood imports from North America accounted for 50 percent of the nation's purchases in 1946-47, but since then France, Finland and Russia have been getting most of this business, with veneers and plywood from Nigeria and the Gold Coast increasing in volume.

Primary wood industries employed about 90,000 persons in 1950, when 1,435 sawmills mainly dependent on home-grown timber for their raw material were being operated. Consumption of imported softwoods in that year amounted to 973,000 standards of sawn timber, equivalent to 268 million cubic feet of logs. The log equivalent of imported hardwood consumed was 99 million cubic feet.

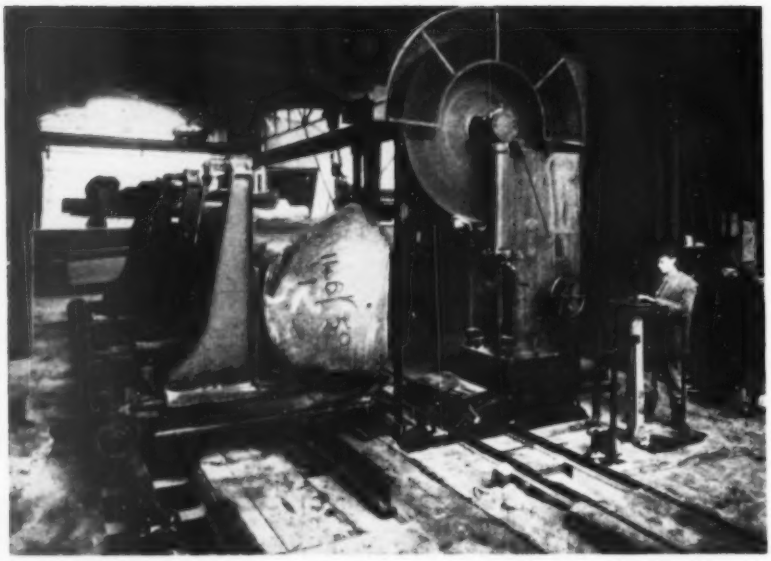
Attention to Thinnings

Fibreboard capacity is about 40,000 tons. Total capacity of the plywood industry is about 2.4 million cubic feet per annum. Capacity of the "integrated" mills in which the whole process of manufacture from log to plywood is carried out is about 1.6 million cubic feet per year, derived from about 90,000 tons of logs.

Log transportation in a well-roaded country such as the United Kingdom does not involve the problems facing less settled areas. The main problem to which attention is being given in the state forests is extraction of silvicultural thinnings, mostly small poles, from young plantations on sloping, often steep ground in which the periodic outturn per acre is about 200 to 300 cubic feet. Mechanical transport is becoming more universally employed, and small tractors, light power-driven winches and tractor-mounted winches are now being used extensively to bring the wood to the roadside where multi-wheeled trailers, light sulkies and pole waggons, suitable for the carriage of small-sized logs in areas where tracked or wheeled tractors can operate, are used, with chutes and cableways where tractors cannot operate.

Adaptions Made in Equipment

As regards tractor-drawn equipment, the main object is to adapt existing types of trailers, sulkies and



A LARGE "BRENTA" LOG BANDMILL at work in the sawmill of James Latham Ltd. on the River Lea in North London. The log on the carriage is a tropical log from West Africa.

pole waggons, hitherto largely designed and used for transportation of large logs per load, to the carriage of a large number of small logs at each loading.

Hitherto, conventional sawmills have been designed in Britain for the conversion of medium and large-sized timber (10 inches diameter and up) but with shortage of saw timber at home and restrictions on imported wood, attention has been given to economical conversion of small-sized poles.

There has recently been an unprecedented demand for light hardwood in place of softwoods whose importation has been restricted. In this category may be included Chilean laurel, French poplar, Siamese krabak, Malayan woods, silky oak from East Africa, antiaris and ogea from West Africa, ramin from Sarawak and baboen, dalli and ucuhuba from South America. Increased use of tropical timbers has been one of the significant developments of the postwar years.

Rubber-tired tractors in Thetford State Forest, Norfolk, England, hauling tree-length wood to the depot at Brandon. (Photo by J. D. U. Ward.)

AUSTRIA

Forested area .....7,850,000 acres
Per cent of total Austrian land..37%
Average annual cut.....9-10 million cu. meters

Austria is ideally situated for the timber export business, because she is surrounded by neighboring countries, such as Italy, who require great quantities of raw wood for further manufacturing. Sawmilling is the oldest industry in the Austrian forest products picture and despite increase of other wood working industries, such as pulp and board making, it still consumes more timber than the others. However, sawmilling took a backseat in technical and industrial development during and after the war years, and it is now a matter of concern to build this industry back up again. Accordingly, with the aid of counterpart funds accruing from Marshall Plan dollar credits, a program has been planned to modernize sawmilling. This plan will be based on a United Nations mission which studied the problem in 1950.

Ineffective Controls Cause Timber Slump

By
KURT B. POECH
Chief Publisher
HOLZRUNDSCHAU
(Lumber-newspaper)
Vienna, Austria

In general, Austrian lumbering has been in a very troubled position for more than a year. It partially depends upon world merchandising affairs and partially upon our mistakes in foreign policy. The greatest downfall was the participation of the political parties in the foreign trade. Austria had to the mid-1951 a terrific foreign trade in lumber, especially in wood products. "Roundwood" was practically not worked and other woodstocks, including wooden houses, were of less importance than "carving-wood-export."

Foreign Trade Lost

This "carving-wood-export" brought our country the most money and satisfied completely the ERP-investments, which had been made in lumber-trade, including the factories. But suddenly the delegation of the chamber of workers in the foreign-trade-commission (which is

responsible for the export) objected and the export was almost stopped. Austria lost trade in Western Europe, where now other lumber-export-countries appeared. The carving-wood-stocks in the sawmills grew and economical breakdowns were the result of this policy, which took work away from numberless workers, and which causd other heavy economical damage.

ZAE, the central commission for import and export, overlooks and eventually allows export proposals, after agreement with the Money department of the Austrian National Bank.

BHWR is the country council of lumber trade and is a semi-official commission which takes care of and controls the Austrian wood merchandising. The BHWR had, e. g., established a so-called "control system" whose aim was supposed to be the insurance of "inland stocks" of carving wood. But the control system was worthless because it kept prices so high that lumber was cheaper abroad, and this system therefore ruined Austria's world market. This system lasted about two years, was much criticized and was the cause of the stagnation of the Austrian lumber markets. The control system was abolished.

Forest Owned By Many

Another step of the BHWR was to set prices for lumber export. To get approval of the ZAE a merchant had to first get permission from the BHWR. To get the BHWR permission he had to get stated prices for his lumber. These p r i c e s were brought to world trade prices. By this, they wanted to prevent price slaughter and they wanted the invested money to stay there. These prices are going to be abolished, but still the BHWR is responsible for export proposals.

The forests of Austria are owned by many people. We have 54% "smallwood property" and about 240,000 owners, who own 17 acres of wood area each. We have about 20% "middlewood" property, comprised of 260 owners who own about 6000 acres each. We also have 9% of the area in privately owned "bigwood," which means "big, high forests." Forty-eight bigwood owners have about 15,000 acres each. Finally there is 17% owned by the state. These forested areas yield about 8 million cubic meters per year (in growth) but produce about 9 to 10 million cubic meters per year in cut timber.

A FIRST HAND REPORT FROM FINLAND

A first-hand report on the forest industries situation in Finland was obtained by a field editor of THE LUMBERMAN just before press time in an interview with a Finnish visitor to the United States. He was Mr. Jouko Koljonen, a representative of the Finnish Employers' Confederation and the Institute of Industrial Supervision, here on an extended tour gaining information on training and apprenticeship methods. Mr. Koljonen is a graduate engineer and has specialized in the wood-working industry.

Seventy per cent of the land area in Finland is in pulpwood forests. Most of this forest area is comprised of small farm holdings. Large companies and the government own the remainder. The main body of raw material is cut as thinnings.

The large wood-using industries, such as the pulp and sawmills, send purchasing men into the field to contact the farms and make contracts for logs. The terms of the contract usually call for one of three methods of delivery: (1) pickup on the farm (2) pickup at the nearest road or (3) f. o. b. a local railpoint.

Company foresters are available for advice to owners. Forest associations also provide counsel to owners and hold schools of several weeks' duration where farmers can learn more about forestry. Although it is not impossible for individual companies to acquire large parcels of forest land, legislation has made this possibility very difficult. Many years ago separate companies began taking over small ownerships and then clear-cutting the stands. The government felt this practice too injurious to the country's economy and shortly thereafter set about ending chances for further devastation. The largest Finnish forestland owner today has about 800,000 acres. Large companies today would not cut out and get out, as the economic picture has changed sufficiently to make such a practice unwise.

Ten to 12 per cent of the total land area was lost to Russia during the war. The Finnish population on this area, mostly farmers, was moved back inside their native border and given forest land previously owned by the government, large companies and other owners who were not as conservation minded as the government thought they should be.

The farmers have a short growing season in the warmer months, and hence have a great deal of time to devote to logging, which is done after the snow comes. The trees are cut in winter only, mostly by hand saws, although power saws, introduced in 1947, are steadily gaining in popularity. The trees are peeled immediately after felling, unless circumstances dictate they will be peeled mechanically at the distination. The trees are moved in whole length or in logs of two meters' length (standard pulp size) by horses, trucks or rubber-tired tractors to the loading point. Some large outfits have crawler tractors but the farm tractors generally double for woods use.

There are some 27 pulp mills in Finland, over 600 sawmills, between 10 and 20 plywood plants and about seven hard and soft board mills. Forty per cent of the annual growth volume goes into fuel and local farm use (such as for fence posts, etc.); 40% goes to industry for pulp and products manufacture; about 10% is exported as "raw" wood to countries like Germany or England; and about 10% is considered lost along the way in waste of one form or another.

The Finns prefer not to export the raw wood so they can keep the manufacturing profits at home, but various trade agreements control the type of export. During all the years of paying war reparations, as much as one-half the national income went for goods to Russia. Now with no countries, except for a few like the U. S., Canada or Switzerland, able to pay for their imports in cash, the Finns must make bi-lateral or tri-lateral trade agreements. For instance, they sell so much pulp to England on the condition that they, the Finns, will in turn buy so many trucks and machine tools.

The outlook for 1953 and for all the foreseeable future is not too bright. More correctly it should be called "tight," i.e. the Finns have plenty of wood and pulp to sell and they have markets for it, but they must be certain that they do not bargain for more other goods than they can pay for.

Mr. Koljonen mentioned the government-industry "Raise Tree" program, which is using seed from outstanding individual forest trees in its nurseries. Several generations hence, their trees should be much faster producers of better wood material than the present stands.

GERMANY

Doubled Timber Deficit Faces Post-War Germany

By HEINRICH SOHST, Homburg, Germany

(THE LUMBERMAN presents herewith a comprehensive report from Western Germany by Heinrich Sohst, senior partner in the firm of F. A. Sohst, Hamburg, which has been in the lumber and timber business for more than 120 years. Mr. Sohst himself has been working with the company for more than 60 years, during which time he has visited United States, Canada, East India and many other countries. His firm also has sawmill interests at Wankendorf and Neuhof.—The Editor.)

Logging here is not usually done like in America, as our forests, sawmills and other customers are spread over the whole country in smaller parts which do not pay to use bigger logging machines. The forests were owned about 60% by the State (Forestry Department) and Communities, the balance by private persons. Now each forest-owner sells his timber felled to the customers and merchants mostly in the neighborhood of the forests. The felling of the trees will be done always by the ordinary forest-workers with the help of saws, axes and carriages mostly driven by horses or mules and very seldom by high-priced gasoline tractors and motors.

Figures from the Bundesanstalt für Forst — und Holzwirtschaft, Reinbek, by the leader Professor Dr. Heske:

Forests of Germany
(In hectares; 1 ha = app. 2½ acres)

	Before World War II	*W. Germany after War II*
	1913	1950
1) Forests covered area	12 675 428 ha	6 810 800 ha
2) yearly growth	49 700 000 fm	18 400 000 fm
3) yearly consumption	61 000 000 fm	38 000 000 fm
4) deficit per year	11 300 000 fm	19 600 000 fm

This last deficit of 19 600 000 fm must be imported yearly. In former times the deficit was:

1805	313 000 fm
1905	8 900 000 fm
1913	11 300 000 fm
1938	19 000 000 fm

imported every year.

(One fm equals 1 Cbm or 424 ft. b.m. All solid full Brereton measure, no Scribner doyle or Spaulding measure.)

From these figures it can be seen that formerly about one third and now about one half of the whole consumption of Western Germany must be imported from other countries either with sea-going vessels by harbours or otherwise by rail or trucks over the land-borders.

Thus, it is necessary that the importers have to use big storeyards and these must be fitted out with the best machines for unloading and loading of the imported woods which are becoming always bigger in sizes and weight. So the importers of sawn woods run big yards partly fitted with planing and sawmills and besides with big covered sheds in the neighborhood of the harbours or the land-borders.

Busy Importing Center

For the increasing import of logs special yard-owners make the log-storage and unloading against an agreed tariff for importers who have no own yards. As these imports mostly are done in bigger quantities so the yards are fitted with modern derricks and cranes. Among these the perhaps largest in Europe is situated in the harbor of Hamburg covering about 900 000 sq. ft. which has big sheds with overhead cranes for piling. These yards have a stone-jetty which allow sea-vessels up to 35 ft. depth going alongside and work *direct* from the ship to the sheds for stapling logs of a weight up to 20 tons in piles up to 40 ft. height. They make a cheaper and quicker work what is necessary especially for the sea-going vessels.

As a longer land-storing will sometimes destroy the logs it is possible to use existing timber-ponds for storing in sweet-water of the rivers near the harbour.

Furthermore there are over the whole country of Western Germany many wood-industries, plywood-, wallboard- and veneer-factories and sawmills with very modern machines and good connection to the import-places.

All these transport-companies and undertakings for conversion are well prepared always to handle more import-woods as now allowed against licences. Especially the Pacific-Coast of U.S.A. and Canada could make a bigger export to here if the permits would be given.

Lumber Market Uncertain

It is very difficult now to make an opinion regarding the lumber industry market here for 1953, because the situation is very uncertain on account of the big loss in prices for last year on the whole wood-market. The general price for imported woods is now about 4 to 8 times higher than before the war against other rough merchandise and therefore most people fear again a rush in the market.

Besides wood-conversion by sawmills and veneer-works there are also plywood and chemical-wallboard factories growing more and more since the beginning of this century. All these are fitted out with very modern machines. They can compete against foreign countries in the better qualities in quality and price especially in sandwich panel called Tischlerplatte.

The home production of plywood for the last two years is about as follows: 1951—479,867 cubic meters; 1952—(first 10 months) 345,070 cubic meters. Imports for the same periods are 20,306 and 16,500 cubic meters. The import was mostly done in thin panels of Birch, Alder and Beech from Scandinavia, where cheap logs for peeling are growing.

LEFT—Electric-driven movable crane lifting up to ten tons weight from ship or rail transporting and storing up to 24 feet high, in the yard of Sagewerke u- Lagerei-Gesellschaft m. b. h., Hamburg. RIGHT—loading timbers from timber ponds at yards of F. A. Sohst, Hamburg, importers.

NORWAY

Forested area .....19,155,456 acres
Annual usable timber growth, exceeds .....10 million cu. meters
Commercial standing timber, est .....340 million cu. meters
State & local forest ownership 19.5%
Private forest ownership.....80.5%
Timber production, 1952.....8.2 million cu. meters

Wallboard production,
1951 .....80,000 tons

Norway's forests are one of her most valuable resources, although no more than one quarter of the land area is physically suited for growing timber. In contrast to popular opinion, Norway's forests did not, as a whole, suffer during the period of German occupation. The

By
ODD LANGMOEN
Pres. & Gen. Mgr.
Berger Langmoen
Forest Industries,
Brumunddal, Norway

important species are spruce, Scotch pine and white birch.

There are over 7000 sawmills in Norway, but less than five per cent are in continuous operation. Felling is usually during the winter. When the timber is logged and the snow melts, dead branches and excess undergrowth are removed; brush and grass are burned off if it is felt necessary. In late spring and early summer, four or five year old seedlings are planted.

Most areas are within eight miles from a floatable waterway, so no special mechanization has been needed in logging transportation. Horses are still in wide use, but are being replaced gradually with small tractors. Power saws are not in wide use, even though Norway is a producer of this item. One such model can be converted to an outboard motor. Much of the Norway's pulp wood supply comes from thinnings.

When the rivers are swollen with melting snow in the spring, the log drive begins. The logs are floated downriver by independent floating associations, which are supported by various pulp and saw mills on a contract basis. In quiet water, the logs are sorted according to types of wood, species and ownership and then towed to the mills. Pulpwood is sometimes left in the water for many months until the mills need it.

Marking of logs is done along with the scaling in the woods by an independent group supervised by the state forestry service. Thus the rate of cutting is controlled as well as the individual wages of the woods workers.

Norwegian Sawmill Industry

The largest producers of sawmill and pulp machinery in Norway, J. & A. Jensen Dahl (Jajod) A/S, Oslo, have reported to THE LUMBERMAN on the part the sawmills play in Norway's forest economy. Their technical staff has done a great deal of planning on the amount of lumber to be produced and the number of men needed in mills ranging through several production categories. Reproduced below is a flow sheet for a circular mill of approximately 12M capacity. Jajod's report is as follows:

Although several modern high speed gang saw mills are in operation in Norway, the sawmilling industry as a whole is characterized by the large number of small and medium sized mills employing circular saws. It is reckoned that in the country there are about 5000 circular sawmills, but the far greater proportion of them are the simplest possible and running a short time of the year only in order to satisfy the strictly local demand for saw goods. The number of circular sawmills in the commercial range is somewhere around 400 and within this category highly mechanized and efficient mills may be found as well as small and traditionally equipped mills.

The total production of the Norwegian sawmilling industry has during the last years averaged about 600 million board feet. The circular mills may be responsible for about one half of this total.

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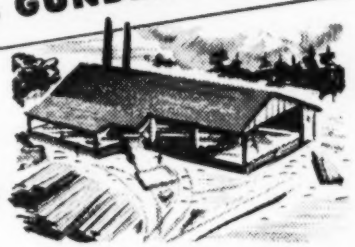

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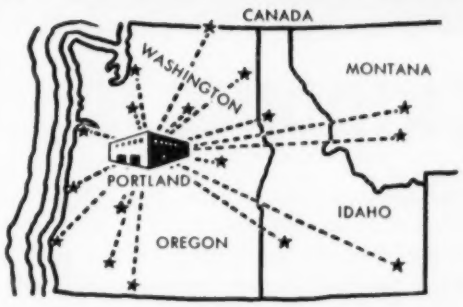

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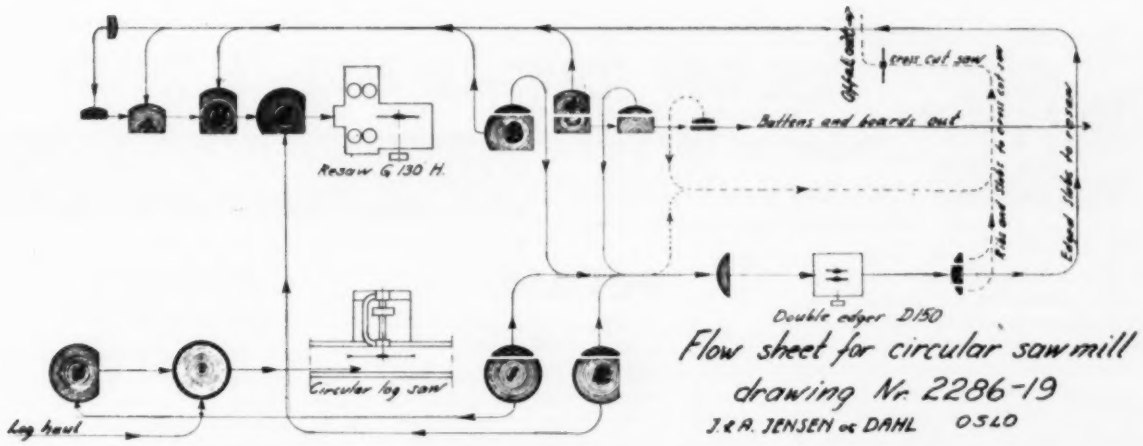

EXPLANATION OF FLOW CHART—Rated capacity app. 13M per 8 hours. "The logs are brought into the mill by log haul and the two operators of the circular saw place them one at the time on the saw table. Two cuts are taken on the circular saw bench, namely no. 1 and no. 2 on the flow sheet. The cant is returned on the saw table and pushed over to the resaw where the cuts 3 and 4 are taken. The finished battens and boards are conveyed out of the mill, whereas the slabs that may be further utilized including the slabs from the circular saw are passed through a double edger. The ribs from the edger are conveyed to a cross cut or a wood chipper in case the offal shall be utilized for pulp or wallboard. The remainder of the slab which now has two straight edges are returned to the resaw to obtain boards."

Workmen required as follows: log haul—1; circular saw bench—2; double slabber—1; log resaw—3; offal cross cut saw—1; total no. of men in the sawmill plus log haul attendant, exclusive of laborers for plank and offal handling is 8. Approximate production per eight hour day is 12M board feet; approx. production per man per day is 1600 board feet.

Whereas the gang saw mills follow the Swedish and Finnish pattern although they generally are smaller than in these countries, the Norwegians have been pioneers on the development of the circular sawmill and they have developed machinery and equipment that in many cases favourably compete with the gang saw mills with respect to productivity and yield.

The firm J. & A. JENSEN & DAHL (JAJOD) A/S, Oslo, has been producing sawmilling machinery for more than hundred years and is now offering machines suited for the conditions in Norway, by which is meant that the amount of timber to be sawn in one place is comparatively small and that the dimensions of the logs are small, similar to the dimensions of the second growth of the American forests. By combining the circular saws to suit timber quantity and local conditions, the firm has developed four types of circular sawmills with rated capacities approx. 13M, 18M, 32M and 28M per 8 hours.

Timber Outlook in Norway

The market situation in short: Lumber is still rationed in this country, as well as cement and bricks. Consequently the government does not allow much export. We hope, though, that there will be some export of lumber this winter. It has been a tremendous construction work after the war in this country, in the industrial sector as well as in the housing sector. That is one of the reasons why we have been short of lumber. Owing to the "terms of trade," the Norwegian government hitherto has preferred the pulp industry to the lumber industry, when fixing quotas for timber, as pulp and paper is our main export products. That is the main reason.

This year all of us have plenty of timber. Some saw mills have stopped production as there are no sales. We feel that this will turn to the better. As the F.O.B. prices for export, e.g. to England, are some 10% higher than the controlled prices on the domestic market, we think that the near future should be rather safe if the government lets us export the lumber. Otherwise I am afraid that the competition will press the prices down. The prices for wallboard have been very low, indeed, but we hope they will soon come up on a reasonable level.

The answer to the question of expectations for 1953, well, that I leave to Mr. Eisenhower and you Americans. It depends on the United States.

JENSEN & DAHL ROLLER-FEED circular resaw in operation. Resaw breaks down logs which have been split in the middle or are edged on two or three sides. There are five rates of feed, with a maximum of 150 fpm and a minimum of 25 fpm. The Norwegians claim that some of their circular saws compare favorably with gang mills.

SWEDEN

Total forest area, acres..58,000,000
Accessible productive forest area, acres.....55,000,000
Production of Unplaned soft and hardwoods, cu. meters 5,594,397

Sweden is truly one of the great forestry countries in the World. It is a leader in log, lumber, newsprint, pulp, fibreboard and plywood production among the countries of the world and is by far the most important timber products producer in Europe, rivalled only by Finland, Germany and Norway.

Like in so many nations today, the production within the forest industries of Sweden depends largely on the international trade situation. When trading abroad is not restricted too tightly, forest products at home are turned out at very high rates; when foreign markets shrink, home production reacts immediately and cuts production.

Logging Well Mechanized

Paper and pulp manufacture in Sweden are two important users of forest raw materials; in the last year

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for which comparative figures are available, Sweden produced 3,146,000 metric tons of wood pulp, second only to Canada and the U. S.

Mechanization in logging has kept pace with production, and today it is estimated that for Sweden at large one-half of the transportation of materials is by big trucks. In the wild regions of Sundsvall and Gavle, rivers are still the main link to the mills, but truck hauling to the frozen river beds has increased as the remaining timber lies farther away.

Swedish loggers have not universally accepted the power saw as they feel the two-man saws are too expensive laborwise and the one-man saws work poorly in deep snow. The one-man "Sandvik" hand saw seems to be the standard used.

Horses Prove Very Efficient

Mechanization may never be complete, due to the amazing performance of locally bred horses in Northern Sweden's deep—snow areas. One observer reports that single horses haul double sleds (on road tracks) twice daily with eight to ten tons of timber per trip, actually better than the best tractor performance seen. Horses are especially efficient in assembling logs for hauling, for short hauls to the rivers and in sparsely forested districts, where they have the advantage of economical operation in the deep snow.

A practical step towards mechanization has been the postwar establishment of central saw filing maintenance shops. Although each lumberjack must have his handsaw sharpened twice each week, great economies in time and wages are effected by shipping saws in wooden containers holding from 18 to 20 saws to a shop, where each of four men can sharpen 15 to 20 saws daily for a nominal fee. Each shop services some 400 loggers.

POLAND

A recent 1953 issue of "Polish Foreign Trade", issued by the Government of Poland, devoted some attention to the pulpwood and pit-prop industries. Although no figures are mentioned, apparently a substantial volume of these two items is produced, both for export and for domestic consumption.

Conditions of soil, climate and topography combine to produce a good grade of spruce pulp timber, with "exceptionally close grain," which renders it more valuable for chemical treatment.

"Polish forestry methods have been radically transformed since the war. Nationalization of forests and adoption of planned economy have resulted in an increased timber crop and in an improvement in quality."

Pulp wood is shipped bark-free or with the bark left on, depending upon the customer's desire. Full barking is done by hand at the timber yards prior to shipment.

"Poland has, as a result of her substantial timber resources and increased production of suitable conifers, entered world markets as a supplier of pit-props. . . . There can be no doubt that the new, rational forestry methods adopted in Poland will, in spite of the growing home demand by the rapidly expanding coal-mining industry, prove instrumental in making available for export increasing quantities of props."

"The scrupulous methods effective in Poland for measurement and computation of the timber volume give the customer every assurance that the shipping specifications are reliable and fair." Poland has also been a large exporter of boxboards (shooks) for fruit. Various packing cases are made from dry spruce (Picea excelsis), true firs and pine.

'Impossible' Accomplished

F. F. Kraegen, manager of the Associated Sawmillers of New South Wales, Australia, writes: "The timber industry of Australia has accomplished what would have been regarded as impossible in 1939, almost doubling production in the intervening period from 711 million feet to 1361 million feet. New South Wales increased output from 179 million feet to 405 million feet, 80 percent being high quality hardwood. During the last six months of 1952 a dramatic change came over the market and demand declined 50 percent, but this is undoubtedly a temporary condition. Steady revival is expected in 1953, but meantime there has been some distress in the industry resulting from over-production.

"Australia has drastically reduced government expenditure to correct the country's trade balances, now showing satisfactory surpluses, and accordingly the trade is anticipating an easing of credit availability this year. New methods of log sales were introduced in March 1953 to make more timber available.

"Average sawmill unit in New South Wales cannot safely plan to erect sawmill units capable of cutting more than from 1.5 million to 2 million feet of logs per annum because of the scattered nature of the log supply."

ETHIOPIA

Mr. Zenna Odda, secretary general of the Ethiopian ministry of agriculture, wrote THE LUMBERMAN, "Last year (1951) 2,717.088 cubic meters of lumber was cut. It is further estimated that the commercial forest area is approximately 10,280 hectares."

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LATIN AMERICA

ARGENTINA

Total forest area...121 million acres

Argentina, although a member of the United Nations, has had no production figures published for it in the UN's Food and Agricultural Organization's statistics. Exploitation has not yet fully developed, although the UN has reported an estimate that one-third of the quebracho in Northern Argentina has already been cut. This country has been importing huge quantities of Parana pine from Brazil; in 1950 over 400,000 cu. meters were imported. There are some 12 to 14 plywood mills and 21 pulp and paper mills. Old growth timber is not managed systematically, and it is expected that the government will in the future become more strict in its control of exploited land.

Report from Buenos Aires

Direct from Buenos Aires, Mr. Leslie Evers, manager of the Chamber of Commerce of the United States of America in the Argentine Republic, dispatched this recent summary:

The industry is widely scattered from the principal consumption center, Buenos Aires, capital is small, machinery very inadequate in quantity and old; transportation costs as much inside the country as it does to bring the lumber from the U.S. or Europe.

Scientific cutting and growing is only just beginning. Yet there are some fairly substantial figures to represent it. The latest figures are of 1946 and show 160,421 tons of logs of which 143,600 was quebracho, with another 200,000 tons of post, sleepers, firewood. Total value was 106,191,000 pesos; There were 1,059 sawmills and cutting plants or camps, and 32,339 workers.

There have been no dollar imports for several years, given foreign exchange difficulties, and at present there is a great slackening in construction for various cost reasons. However, even when producers cut prices to no-profit levels, consumer prices stay high due to high transport costs.

BRAZIL

Virgin forest area..865 million acres
Plywood output (1947),
So. Brazil.....98,000 cubic meters
Plywood production
(1950).....59,098 cu. meters
Veneer production
(1950) .....93,253 cu. meters
Value of foreign exports
(1950) .....$38.9 million
(unmanufactured only)
Production of pine lumber
(1950).....2,319,420 cu. meters
Production of other lumber
(1950).....651,343 cu. meters
Production dressed hardwoods
(1950).....50,790 cu. meters

There are over 2000 varieties of hardwoods in Brazil, of which it is said that more than one-quarter of the known species of the vegetable kingdom grow in its woodlands. The most important wood in Brazil is the Parana pine, which is also the most valuable softwood in South America. Commercial exploitation of Brazil's forests has been centered in just a handful of the available species in nearly 500 years of lumbering. Over 1000 species of palm trees alone exist.

The lumber industry is centered in the Southern States of Rio Grande de Sul, Santa Catarina, Sao Paulo and Parana. Here in the native domain of Parana pine (Araucaria brasiliensis) there are few operating difficulties. There are over 5000 sawmills in operation in the South. The monthly operating capacity is about 732,000 cubic meters for all these mills.

Plywood makes up an important segment of the forest industry, and there are 280 factories in the South with a registered output of 98,000 cubic meters (1947). The various South American republics present an ever-increasing market and the manufacture of plywood has been carried on more vigorously in recent years.

Good Utilization Found

Cedar is next in importance after pine in foreign trade, and is followed by imbuia, aguano, jacaranda (often called Brazilian rosewood). Pine trade brings in 89% of the total value.

Brazilians are "waste-conscious" and are making good use of leftovers in by-products manufactures. The mill at Tres Barras, Santa Catarina, the largest in South America, has installed a wood distillery. Pyroligneous acid, tar and derivatives are being produced from a pile of sawdust that had been burning for 30 years. Consideration is being given to the making of a compressed fuel, similar to Pres-to-logs.

With tremendous wood reserves in the Amazon Valley that have never been cut, such as in the State of Amazonas (where the reserve supply is estimated to be sufficient for 500 years, notwithstanding reforestation), and elsewhere throughout the nation, Brazil will become increasingly important as one of the world's great timber countries. Government foresters are well aware of advanced silvicultural practices, and constant research in forest management and forest product is carried on.

BRITISH GUIANA

Total forest
area.....70,000 square miles
Percentage of total land area...87%
Exploitable forest,
hardwood.....14,000 square miles
Potentially exploitable
forest.....40,000 square miles
Volume of standing timber in
exploitable area...13 billion cu. ft.
Sawmill production
(1950).....30,000,000 feet B.M.

Production of logs and lumber during the past six years in British Guiana has progressively increased. In 1949, the total topped 3 million cubic feet for the first time in the history of the colony. Greenheart accounts for the bulk of the timber produced but there has been a welcome trend towards increased output of secondary hard hardwoods, such as crabwood, mora, locust and kabukalli, and secondary soft hardwoods such as Silverballi, simarupa and dalli.

Value of forest products exports is approximately $2,000,000 a year, this total having been achieved for the first time in 1950.

There are about 90 sawmills in the colony, more than 60 of them being equipped with circular saws, 10 with circular and gangsaws, 9 with gangsaw only and two bandsaw

LEFT—A Donarm power saw is used for trimming splits and damaged logs before trucking. An Automower loading winch giving a direct lift (and brakes to hold) of 22,000 lbs. is seen in the background. RIGHT—The truck is backed under the jib each time a log is raised for loading. It takes 20 to 30 minutes to put on an average load.

mills. Capacity of the circular mills is about 24,000,000 feet B.M.; bandsaw mills, 2,000,000 feet. Over-all the mills are working at about 60 to 70 percent capacity.

Logging in South America

By

ANTHONY F. BENNETT
Senior Forest Assistant
Wineperu operation of
British Guiana Timbers, Ltd.

We feel that some details of our Tropical Hardwood Logging Operation may be of interest to other timber men, as the equipment and methods are modelled on North American practice—adapted for the tropics. We use a fair amount of American equipment and we are extremely pleased with the performance of it all. Where British equipment of a suitable type is available we have to use it, of course, and we feel that such a hybrid operation is probably unique in the Americas.

B. G. Timbers have a lease of 450 square miles of forest in the Bartica Triangle, the area lying south of the confluence of the Essequibo and Mazaruni rivers, about 60 miles from the coast of British Guiana. The terrain is mostly under 500 feet and is broken by innumerable swampy creeks and gullies; the ridges are interrupted by steep saddles.

The "middle" areas on the slopes contain as their chief species, Greenheart; others that grow with it are Purpleheart, Silverballi and softwoods. Softwoods are severely attacked by the ambrosia beetle after cutting. Greenheart is used particularly in heavy marine installations, since it is very resistant to teredo.

Logging is building up to supply logs for a new band-mill being built at Georgetown, to be completed the middle of this year. The present fleet consists of five Caterpillar D-7's, four with straight bulldozer and one without, and all with Hyster winches and logging arches; one D-8 with Hyster winch and angle-dozer; and one International TD-18 with Bucyrus Erie winch and Carco arch.

The average tractor haul is less than ¼ mile, generally uphill to the roads on the ridges. A Skagit loader is used. The trucks are of British make. Experiments are being made with rubber-tired arches. Trucking is a round trip of 20 miles at present with an overall average for the area about 50 miles. Logs are dumped into the Essequibo river and shipped to the mills by pontoons.

B. G. Timbers is managed by Steel Bros. & Co., Ltd., who have had 50 years experience in tropical forestry work. We feel that this operation is a unique example of a combination of British and American know-how and equipment providing logs and lumber for both the American and European markets.

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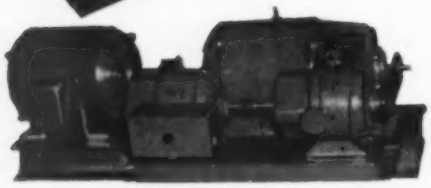

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PAUL M. DUNN

CHILE

Total forest area....40 million acres
Commercial forest area.....12.4 million acres
Total production lumber, 1950-51 262,104,040

Lumbering in Chile

By Paul M. Dunn

(Editor's note. Mr. Dunn is dean of the School of Forestry, Oregon State College, on leave in Chile, where he is initiating a forestry curriculum at the University of Chile. Just after dispatching the following report to THE LUMBERMAN, Dunn started a 500-mile trip en route to a new Forestry Summer Camp.)

The logging and lumber industry here is not like it is in the States; operations are small with little-to-no equipment of a mechanical nature. Trees are felled by ax, and some with saw. There are only a few power saws. Logs are moved by hand by oxen with a few horses and some tractors. One concern is equipped for limited arch-logging.

Logging is done in the winter, and the yarding and hauling in the summer, as roads are all dirt and few in number. Most of the timber is hardwoods, so heavy that it is not floatable. Logs are barged down or across streams. Mills are small, mostly cutting between 5 to 10 thousand board feet per day for a season of perhaps 100 days. Most have circular saws with inserted teeth; there are only 5 or 6 mills with band saws. Two larger plants are installing Swedish gangs.

A few mills have dry kilns, mostly the "Kiefer" forest draft type (German). There are no new plants under construction, although some have been talked about. There is one pulp mill here now and another is being promoted. There are three plywood plants, one veneer plant and one wood-preservation plant. The latest census, which was 1948, gave 358 classified forest industries employing 10,000 workers. There are a few more employed today.

There is a lot of charcoal produced. One plant here makes 20,000 tons per year; however, most of the charcoal is made in simple kilns in the woods.

Fifteen Percent Exported

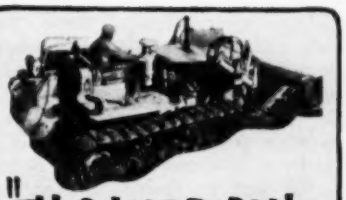
The production of sawed lumber in Chile fluctuated during 1952. The total production was approximately 250,000,000 board feet of which about 12% was planed. This amount was considerably below the peak year, 1945-46, when 365,000,000 board feet was produced. The major species were: Roble, 20%; Rauli, 15%; Coigue, 13%; Laurel, 10%; Olivillo, 7%; Tepa, 7%; Insignis pine, 6% and all others 28%. The major zone of production was the province of Valdivia with 35%.

The export market consumes about 15% of the production with a marked decline for 1952. The average for the period 1946-50 was 43,340,000 board feet with the peak in 1951 of about 74,000,000 board feet; however, the shipments for 1952 will total not more than 40,000,000 board feet. The last six months of 1952 showed a heavy slump, as the period of January to July registered loadings totaling 28,000,000 board feet.

The principal export markets for Chilean lumber are Argentina, 80%, and Great Britain, 15%, with Peru taking the bulk of the balance; these figures are for the first half of 1952. All of these countries, particularly Argentina, have suffered economically in the past 18 months. It isn't expected that the situation will change much during 1953.

Production May Decline

Domestically, the present government has expressed desire to encourage construction of housing units and has a program of public housing; however, the financing of the housing is a problem. At the present time, it appears that lumber production may decline for the next year to approximately 200,000,000 board feet because of recent inactivity of the market during the past year, the difficulty in procuring rail equipment for transportation, and lack of ready credit on the part of the producers. These reasons have already caused a shut-down of around 10-20% of the sawmills.



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The job was clearing 500 acres of salt marsh for crystallizing ponds. To quote, "We selected LUBRIPLATE No. 107 for track and general lubrication and LUBRIPLATE APG-140 for transmissions and final drives. During the entire job there was no replacements of track rollers nor any tie-ups of equipment due to parts replacement or breakage!"

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More optimistically, there has been considerable talk, with planning, for increased production and marketing of forest products. The government has an agency that is a planning promotion group. While it has been in effect since 1939, it has in the last 18 months renewd its activity. In May, 1951, an intensive inventory of the major forest area, Valdivia Province, was started and the data have all been assembled. Forest areas are typed, and volumes are at hand. Projected utilization plants are being planned, including several new types, such as chemical and hardboard plants. One completely integrated establishment is being proposed. A survey of Monterey pine plantation in Chile, which will be completed this year, is expected to give basic data to support the expansion of the pulp industry, including a 30-ton chemical plant and a 20-ton ground wood mill.

COSTA RICA

The Forest Industry— Past, Present and Future

By
J. HENRY BARBOUR
Central American Manager, Plywood-Plastics Corp., and Pres., Industrias Ticas, Ltda., San Jose, Costa Rica

The Republic of Costa Rica is a small country, 23,000 square miles, lying between the countries of Panama and Nicaragua. Population is by the 1950 census 794,081 inhabitants, mostly concentrated in the upland regions.

The prime source of income here is from agriculture—coffee, bananas, and cocoa. Despite this agricultural economy, about 80% of Costa Rica is still virgin forest; in this forested region there is estimated to be about fifty billion feet of merchantable timber. Due to rapid tropical growth rate and absence of forest fires, this means virtually perpetual timber stands.

Similar to Pacific Coast

Except for local consumption, there has been little commercial exploitation of timberlands. The only company that has shipped in any quantity is the Plywoods-Plastics Corporation of Hampton, South Carolina, who have exported about thirty million feet of veneer logs over the last five years; total exports in all previous years from Costa Rica would not exceed twenty million feet. Therefore, it is easily apparent that the forest resources are still here.

From a commercial point of view, the timber of interest is that of the Evergreen Rain Forest regions which are the trees located in elevations under 1000 feet and in the rainy zones. The whole Atlantic Coastal region and portions of the Pacific coast come under this classification.

LEFT—A raft of Cativo logs containing 500,000 board feet lying in the Moin river, Limon, Costa Rica. RIGHT—Cativo logs loaded on a truck and trailer, ready for shipment to Limon. Americans in Costa Rica believe that this wood will become more important in world trade in years to come.

Pacific Coast woods are mainly used for local consumption and there are very few exports. Quantities are not too great with the precious woods such as Mahogany and Spanish Cedar now quite scarce. For construction purposes, the woods Pochote and Cristobal are widely used.

The Atlantic Coastal Region is probably the most important from a commercial standpoint as the forests are more abundant and the export market closer at hand. There are three species in this section that are exported on a rather large scale: Spanish Cedar, Cedro Macho, and Cativo. The Spanish Cedar goes mainly to Cuba for use in cigar boxes, furniture, and high class interior trim. Cedro Macho (Carapa guienensis) is very similar in appearance to Mahogany and is used in the furniture trade as a substitute. Germany has always had great interest in this wood and the United States has recently begun importing small shipments. Found in abundant stands, Cedro Macho offers great opportunities.

However, for abundance and possibilities, Cativo (Prioria copaifera) is the most important species. This wood is shipped in logs for veneer purposes and has been found a successful substitute for Gum and Poplar; its greatest acceptance has been for face stock in the flush door trade. With stands of up to 50,000 feet to the acre and the trees perfectly cylindrical with little taper, Cativo is ideally suited for Plywood purposes.

Cativo would appear to be also well suited for millwork and general interior trim. Due to its low shrinkage factor, it might prove suitable for more exacting uses such as pattern making. It has also proven ideal for use in cross ties.

There are approximately 130 sawmills in Costa Rica, most of these being small circular mills. Annual production is about 37 million feet, most of this for local use. The value of this production is about $2,500,000 yearly.

Stumpage $6 per M

Logging for export has become of increasing importance over the last few years. The Plywoods-Plastics Corporation has logged nearly a million feet monthly over the last few years, and there are now other companies logging for export. Logging conditions are similar to the U.S. West Coast in regards to large timber sizes. Heavy crawler equipment is used with logging archs having great acceptance.

Stumpage values run about $6 per thousand feet and there are still large quantities available. Governmental control is far from rigid, and there is no export tax on logs or lumber.

In addition to logging and lumbering, there is a fairly well-established woodworking trade. One of these companies, the Industrias Ticas, Ltda., is exporting large quantities of such items as trays, salad bowls, lamps, etc. Using such woods as Mahogany, Cocobola, and Lignum-Vitae, this company is able to compete in quality and prices with other tropical countries.

Sales Outlook Improving

The sales market this year has been a little off from the few years before. However, it is calculated that 1953 will show a decided improvement. Large construction projects are soon to start throughout the country (both governmental and United Fruit Company) and this will probably increase local demand by about 50%. Export sales are on the increase due to the Cativo and Cedro Macho becoming better known in United States markets.

From the United States investor's point of view, there is much opportunity to be found here in the wood

field. Stumpage investments, sawmill, and plywood plant installations would all offer excellent returns. As hardwood supplies become more scarce in the coming years, companies will have to turn to tropical woods. Stumpage values will certainly increase. Also, with an increasing local and export demand for lumber, there is great need for a modern band sawmill here. In the veneering field, it would appear a natural to install a plant here; the ocean freight saving on shipping the finished product would be considerable. There would also be a large local demand.

ECUADOR

Total forest area....35 million acres

Mr. John J. Knox, vice president of the Balsa Ecuador Lumber Corp., has reported to THE LUMBERMAN on the balsa industry in Ecuador.

His company furnishes kiln-dried balsa to the furniture industry for core stock, as well as custom-prepared balsa for other industries. Panels made with this wood are claimed to be very light in weight and also warp-resistant. His report follows:

The logging in Ecuador is done mostly by oxen who draw two or three logs at a time from the felling areas to the rivers, where the logs are assembled into a balsa (the Spanish word for Raft) and floated down to our sawmills.

LOADING OF BALSA LUMBER, kiln-dried, in lighter at the pier of Compania Ecuatoriana de Balsa (Balsa Ecuador Lumber Corp.), Guayaquil, Ecuador. (Photo patented. Printed with permission from Balsa Ecuador Lumber Corp.)

Some people have tried tractor logging, but the cost of production is too high considering that we obtain our logs from mixed forests and not from pure stands. The logs are light enough (500 lbs. each) to have an oxen team pay profitably for its maintenance.

The lumber business in Ecuador is mostly geared toward internal consumption with a very even demand throughout the year. Balsa, on the other hand, depends largely upon export, and the outlook for our industry in 1953 depends largely upon economic conditions in the U.S.A. and Europe.

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Other Countries in—

CENTRAL AMERICA

BRITISH HONDURAS—Forests of this colony are an important economic asset, providing a large proportion of the exports and giving direct and indirect employment to many of the people. Efforts have recently been made to provide more efficient long-term forest management. At the end of 1950 there were 700 acres of pine plantations and 300 acres of mahogany plantations. There were 93,000 acres under natural reforestation, most of it for pine. Sawmill capacity is about 1,300,000 cubic feet. There are no pulp, plywood or paper producing plants. Most of the mills are without advanced manufacturing facilities, only one mill having a band saw. Planing machinery has been introduced and dipping to prevent stain of lumber is becoming popular practise.

CUBA—Officials here are pessimistic over the future of lumber operations, due to overcutting. There is no active reforestation program, either by government or private forces. The estimated domestic lumber production for 1951 was 35,028,-704 board feet.

DOMINICAN REPUBLIC—The near future here looks bright, due to a moderately lively export market and a steady demand for construction materials at home. Lignum vitae is a precious wood and is exported to Great Britain and the U. S., principally. Pitch pine has been exported to Dutch West Indies and Porto Rico. Last report lists 82 sawmills with over one thousand workers. 1951 production was 30,-447,000 board feet of lumber produced, of which 27,349,000 was pine. Lignum vitae is exported in log form.

GUATEMALA—There is a new plywood factory at Las Quebradas using producing mahogany and secondary hardwoods. Timber rights were recently obtained to 60 million feet of virgin yellow pine, which will require 12 miles of new road. Logging methods remain unchanged; practically all timber is felled with axes, handsquared and dragged by oxen to the nearest road. Some larg-

er operators use tractors, but only as supplemental to the oxen. Labor is abundant and cheap. Average prices there at last report were $70 per M for yellow pine, $110 for cypress, $300 for mahogany, $300 for primavera, $200 for cedar (all rough sawn lumber; dressed lumber $10 per M higher). U. S. imported most of Guatemala's pine exports, and along with Cuba, also got most of the hardwood logs and lumber, in 1951. Estimated production for 1951 (excluding ties, fuel, posts and poles): 9 million board feet. Mr. H. J. Kroner, of the export firm of R. A. Smith, Guatemala, says, "The lumber industry is still in its infancy and is progressing very slowly due to the lack of expert advice in logging and expert grading, and specifically to the lack of interest on the part of local banks to help any industry that has nothing to do with coffee. There is an ever-increasing demand for Guatemala Longleaf Yellow Pine but orders are generally too big to be handled by any one sawmill."

HONDURAS — Lumber production during fiscal year 1951-52 is estimated at 370,000 cubic meters, including lumber and logs. High percentage of the cut is pine, which is considered to be better than the average grade of pine in the U. S. but not quite as good as Louisiana longleaf pine. In the same fiscal year above, the U. S. took $170,000 worth of mahogany and logs and Mexico took about $225,000 worth. Total value of lumber exports amounted to nearly $8 million. There is no one in Honduras who will venture even a wild guess as to how much timber there is or how much land is accessible productive forest land.

NICARAGUA—It is estimated roughly, that 60 million board feet of timber was felled in 1952. In 1951 Nicaragua shipped 2,670,312 board feet of mahogany logs to the U. S., worth $344,529. The future looks precarious, due to increasing difficulty to get good logs, transportation difficulties and problematical local conditions. An American owned company (the Nicaraguan Long Leaf Pine Lumber Co.) has been carrying on extensive logging operations but expects that its supply will be exhausted in three years. An American mahogany concern, the Freibrug Mahogany Co., which has been doing business in Nicaragua over 25 years, expects to open a big new operation in 1953 in its concession along the Coco river.

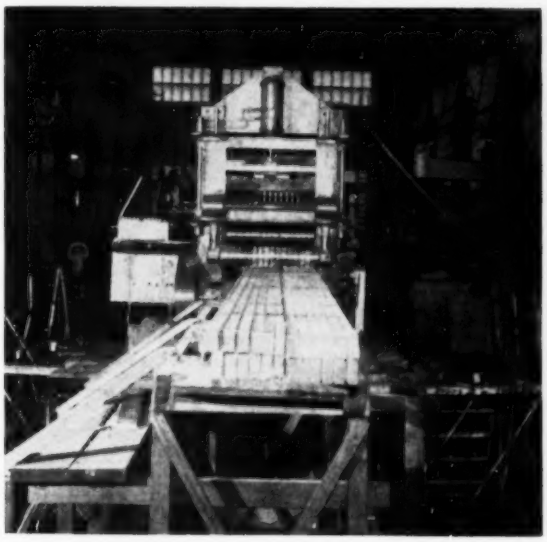
TRINIDAD AND TOBAGO

Total forest area..1,006 square miles
Percentage of total land area....52.3

Although timber utilization is promising, the industry has been backward, most of the mills using small circular saws and automobile engines. No seasoning is done except by the users of the wood.

Most of the home-town timber has gone into production of railroad ties, match blocks and boxes. An increasing amount is being used for construction, especially in the rural areas.

The mora species is becoming the mainstay of the industry, and it is available in concentrated blocks of mature timber. The forests are being managed so that when the mature wood has been exhausted the demand will be satisfied from the teak forests now being planted.



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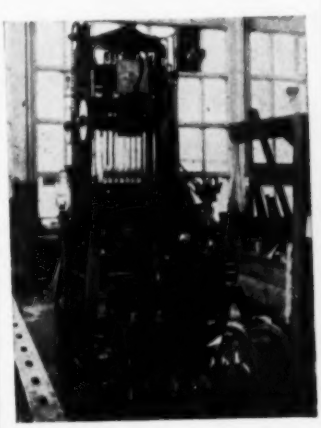
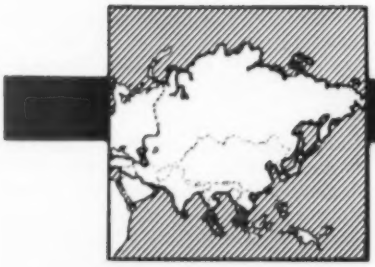


Cuts up to 18-inch round logs . . . ideally suited to handle cores.



ASIA

PHILIPPINES

Total Forest Area...36,680,000 acres
Annual Log Production .....597,000,000 bd. ft.

The Republic of the Philippines occupies a very important place on the world forest industries scene by virtue of its great stands of hardwood, claimed to be the most extensive on the globe. Being in a tropical climate the trees grow every month of the year and hence show no growth rings.

There are a number of species which make up Philippine Mahogany. Principally they are Tanguile, Red Lauan, Almon, Bagtican and White Lauan. Separation of lumber is usually by color properties rather than by species, such as dark red and light red. This wood is strong for its weight, of medium density and hardness and has excellent properties of machinability and finishability. It is durable.

THE LUMBERMAN has a first-hand report on the industry by the president of the Insular Lumber Co., manufacturers and exporters of Philippine mahogany. This company has been operating in the islands for nearly 50 years. During the Pacific war, the company suffered great damage to facilities, and it was not until 1948 that export of wood to the U. S. resumed.

Report From the Philippines

By
HENRY S. THOMPSON
President, Insular Lumber Company

We are currently producing at the rate of 50 to 55 million board feet annually, and most of this production is kilndried green from the saw in our battery of thirteen (13) double track 20 x 120' Moore cross circulation drykilns. Close to 50% of the production is further processed in our large planing mill where we have three (3) planers and matchers including a recently installed Stetson-Ross 6-10-A1, two (2) Moulders and a box shook department.

We definitely do look for continued growth of the Philippine lumber industry in general, primarily for the following reasons:

1. Philippine Mahogany is one of the very few high quality tropical hardwoods which grows in sufficiently uniform and dense stands to permit application of modern mass production logging and manufacturing methods. This means that it can be brought to the consumer at substantially lower cost than other tropical woods of comparable quality.

2. Over the period of the last fifty years an increasingly large number of Filipinos has become educated and skilled in modern logging and manufacturing techniques, and the Philippine sawmill industry in general follows closely the best new developments in American methods.

3. There are few high quality cabinet woods in the world today which offer such consistently high grade value as Philippine Mahogany and which are sure to be available in real volume throughout the future.

Regarding new plants, The Bislig Bay Lumber Company, which is controlled by Colonel Andres Soriano, probably the leading Philippine industrialist, is the newest major entry in the field and is expected to be an alert and progressive factor in the trade. Also in the course of the last year the Dahican Lumber Company has, we understand, been taken over by a group from the Pacific Northwest. There is a small but growing plywood industry in the Philippines and export of logs to various world markets, including the United States, for manufacture into plywood, has been steadily on the rise.

General development of interest would include the continued progress being made by the Philippine Bureau of Forestry under the direction of Florencio Tamesis in maintaining uniform quality standards in export grading of Philippine Mahogany lumber. Director Tamesis is

GENERAL VIEW of the Insular Lumber Co.'s installation at Fabrica on the island of Negros in the Philippines. Separate units in the picture are the sawmills, dry kilns, power plant and sorting shed. Insular will be 50 years old next year. Before World War II the company was the largest operator in the Orient and cut and sold more lumber than any other hardwood mill in the world. The first two years of postwar operation, 1946-47, were devoted to vital housing and construction in the Philippines; export to the U. S. resumed in '48.

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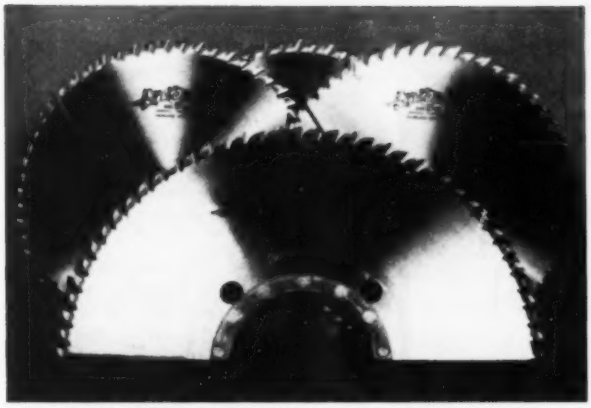

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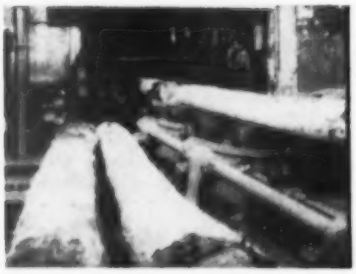

A diesel tractor with arch hauling logs from a cutting to a landing, where they are loaded onto log cars. Insular Lumber Co. operations in the Philippines.

also carrying out some interesting and worth while experiments in reforestation, one interesting feature of which has been the excellent results obtained in experimental plantings in the Philippines of Teak and of Swietenia Mahogany.

JAPAN

Overcutting Poses Problem For Land-hungry Islands

Forest Land Area..61.6 million acres
Percentage of Total Land Area.68%
Accessible Timber Land
Area .....16.7 million acres
Volume of Accessible
Timber.....13.7 billion cubic feet

PRODUCTION: IN M CU. FT.

	1951	1952
Cutting sawtimber	601,225	626,000
Growth	226,324	226,324
Excess cutting	374,901	399,676
Overcutting	166%	174%

The above table very graphically points out the predicament that faces the Japanese forest industry. Japan imported huge volumes of timber between World War I and the 1930's, when the militarists used foreign credit for other goods and began heavy cutting at home. Since 1945, re-construction and industrial demands have caused excessive domestic cutting. Loss of former forest resources of Formosa, Korea and Karafuto caused further difficulty.

Despite all the measures which can be taken to improve yield, reduce waste and extend available timber as far as possible, the reality is that Japan is in the critical position of having only 15 years' remaining timber, at the present rate of drain and growth. Continuation of the present rate of cutting will mean that reforestation would eventually become too costly to undertake and that Japan would face the prospect of becoming a timber-barren country, such as China, South Korea, India and Italy.

Fortunately the Government of Japan and businessmen there understand the situation. The key to a successful program of forest rehabilitation is the importation of sufficient material to allow home cuttings to be reduced to sustained yield levels. Various U. S. government forestry missions have undoubtedly helped the Japanese better understand their own problems.

Although coniferous forests cover but 15% of the country's forest area, they account for 85% of the sawlogs. Broadleaved trees supply the other 15%. The commercially cut broadleaved trees are short-bolled, crooked and forked and range in age from 100 to 300 years. The natural loss plus fire damage does not permit any volume increment in this group.

Ownership in Japan is largely private, by area, but most of the timber volume lies on government-owned lands.

The presence of Japanese forestry experts in Alaska during this past winter points to the fact that they are anxious to supplement home production with imported tim-

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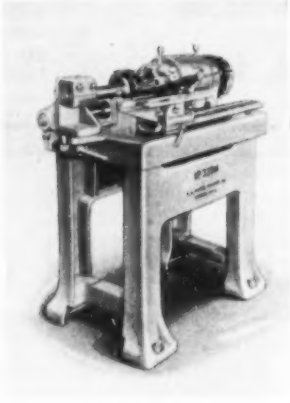

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ber. At press time, THE LUMBERMAN had learned nothing further concerning the success of this group to begin sawing Forest Service timber in Southeastern Alaska. Reports have stated, however, that any such enterprise must be financed partially by Americans and staffed entirely by Americans.

THAILAND

Value of Teak Production, 1950 ..... *$18,000,000*
Value of Other Timbers, 1950 ..... *$25,000,000*
Number of Sawmills..... *318*
Number of Employees... *2176*
Volume of logs and lumber produced in 1951, cu. meters..... *1,424,851*

THE TEAK AREA

(Burma, India, Thailand)

Burma, commercial forest area .....*63 million acres*
India, total forest area .....*94 million acres*
Thailand, commercial forest area .....*27 million acres*
Value of teak production, 1950, Thailand.....*$18 million*
Value of other timbers, 1950, Thailand.....*$25 million*

By
C. B. MODY
Managing Director,
The Burma Teak
Trading Co., Ltd.,
Colombo, Ceylon

In Thailand, there are 318 sawmills with 2176 employees. Few sawmillers own their own timber. Elephants provide the motive power in moving the logs from stump to the nearest stream; however as the cutting moves farther away from waterways, use of truck and trailer is gradually being expanded. A very few crawler tractors are used for yarding; they are limited to the drier areas.

The second-most important species, next to teak, is called Yang (Dipterocarpus spp.). It contains a large percentage of resin and will not dry out sufficiently to float alone; hence, bamboo rafts are used to support Yang when it is floated to market.

Thailand is an importer of plywood and hardboard, there being no production of plywood or veneers there. Since the war, exports of its woods have increased greatly, with the major buyers being Great Britain, Hong Kong, Malaya, Ceylon and Italy. 1951 production of teak was 258,651 cubic meters; yang, 222,759; and other woods, 943,441.

Teak Production

Our firm of The Burma Teak Trading Co. Ltd., was established in 1926. The total annual import of teak by commercial firms in this island is at present not more than 4500 tons, of which we important over 2500 tons.

Teakwood is grown in Burma, Thailand (Siam) and India. The quality of the first two countries is superior to the teakwood grown in India. The export of Burma teak in pre-war was on a large scale, and she exported teak over 350,000 tons annually. Export from Thailand has been maintained as before, and she exports teak to the tune of 40 to 50 thousand tons annually. Export of Indian Teak is nil, as India is not in a position to export, as her own requirement is so great that she is compelled to import teak from Burma and Thailand.

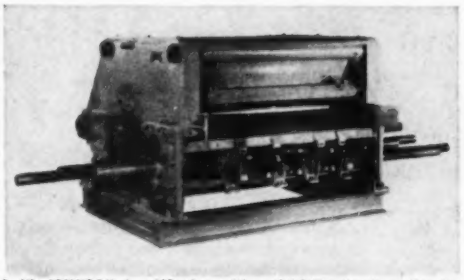
Teakwood is generally used for house building, for doors, window-frames and shutters, for stair-cases and wall cup-boards, for roofs and for decoration, beadings, mouldings; in general there is a vast demand for teak furniture all over the world due to its beautiful grains. Besides this, teak is also in large demand for ships' deck building. Though it is light in weight on account of its high percentage of oil contents, it is very strong and durable, and on account of these special properties this wood is very much used for various purposes not only by well-to-do people but even by middle class people in spite of its high cost.

Logging Slow Process

Besides Teak-wood, we find various other kinds of timber such as Mahogany, Poona, Eng, Pinckado, Pali, Mango, Halmilla, Jak and hundred other cheap common wood varieties in the East.

In Burma Teakwood trees are not allowed to fall before their age reaches over 25 years. Generally teak trees are girdled leaving three feet from the surface and allowed to take their own course to get seasoned. When the girdled tree is dried up, it falls down itself, but it takes a year or so after girdling the tree. This process in the forest is generally carried out before the rainy season; all the fallen trees are brought to the nearest stream to float during the rainy season. It is a very slow process in comparison with the modern method used in U.S.A. with the help of various mechanical means. Here the trees are allowed to take their own course and travel in the stream and reach the main river, where different lessees of forest are collecting their logs (according to the hammer stamps) and from there all the logs are being rafted and brought to sawmills for conversion. The minimum and maximum time for a log to reach sawmill after felling of the tree ranges from 4 to 10 years.

Fine Sawmill Machinery for 50 YEARS



I. W. JOHNSON 4 x 30" edger with anti-friction bearings. Can be seen at Pacific Lumber Co., Scotia, Calif., Coast Redwood Co., Arcata, Calif., and Aloha Lumber Co., Aloha, Washington.

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INDIA

Enormous Timber Stand Fails to Meet Demands

Total forest area.....230,789 square miles
Area under government control.....150,000 square miles
Annual output from all forests.....1,500,000 tons
Employees in timber operations 20,000

Only a little more than half the total forest area is considered economically exploitable. There is an enormous range of species in the Indian forests, one estimate of the number being 4,000. With the exception of the forest belt at the foot of the Himalayas and on the plains of the Ganges valley, where conifers and sal predominate, the forests in Assam, Central India and the Andamans and South India are mixed. The total supply, however, falls considerably short of domestic requirements.

More than half the timber utilized goes to the railroads and other government departments and 30 percent to industry. Use of wood in some instances has been retarded by the cheapness of stones and bricks.

There are about 500 sawmills in the whole of India and of these less than 10 per cent are forest operations of substantial capacity, the others depending on conversion, most of which is done by hand sawyers either at the stump or in depots. The estimated investment in sawmills of $1,-200,000 refers only to the ten largest operations.

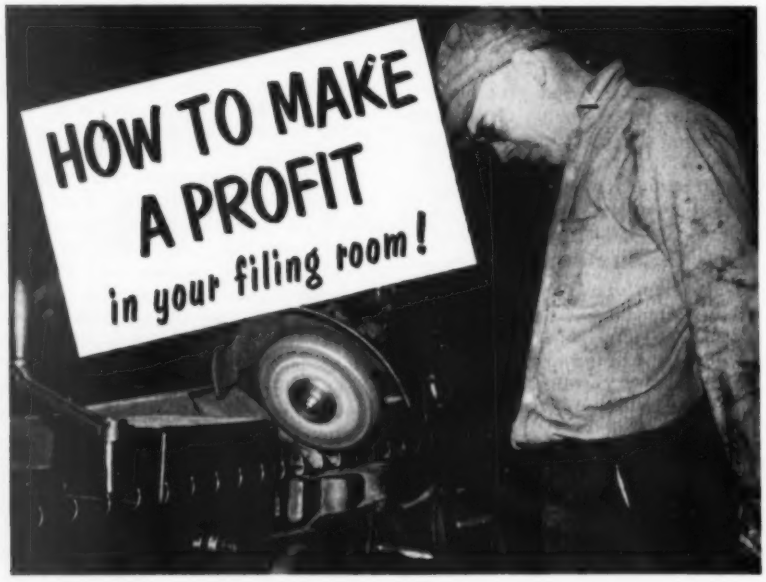
Demand Exceeds Supply

In logging, the ax and saw are still used almost exclusively, the power saw being limited by lack of experienced labor. Trees are felled six inches to one foot above ground level. Where wheel transport is not available the logs after felling are dressed and a drag hole is cut at the butt end of each log for dragging purposes. Buffaloes and elephants are widely employed from stump to nearest railhead. Tractors and trucks are used to some extent and waterways are put in commission during the rainy season when rivers are in flood. Cost of timber production averages about $2.40 to $3 per cubic foot of sawn timber.

According to Himatsingka Timber Ltd., Calcutta, lumber of essential species is generally in short supply and demand is far in excess of production. Wholesale and retail prices are fixed by the government according to quality of wood. Principal users of wood are match, bobbin and shuttle (textile), furniture and building materials industries, including plywood plants. Bango Timber Trading Co. and Bird & Ray Co., both of Calcutta, report that while more attention is being given to properly developing and utilizing native timber, imports will have to be continued on a fairly large scale.

Some Integration in India

Integration of operation has been applied to the sawmill and plywood-furniture industries, and there are two government-owned wood distillation plants, with a few wood preservation plants. Paper and pulp mills, of which there are several, use mainly bamboo, or grasses. In Assam, the Assam Railways and Trading Co. owns a plywood plant, a sawmill and a wood preservation plant, all three being located in the same compound. Sawdust is used for power generation and to supply electricity for the adjacent town. Cores from veneer peeler stock are split, treated and used as fencing. At Shi-



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moga a sawmill, seasoning kiln and a small treating plant are working in close co-operation. A match factory may shortly be integrated into this operation.

Most of the other sawmills and plywood factories use all waste as fuel. Wood distillation plants are at Bombay and Bhadrawati, in the latter place the plant being attached to the iron works and the methanol obtained as a by-product is converted into formaldehyde when demand is sufficient.

Board Expansion Foreseen

D. Narayanmurti, of the Forest Research Institute at Dehra Dun, believes there is a future for chip board or wall board plants using the dry process attached to existing sawmills and plywood plants, and it is estimated that operations producing only two or three tons a day would be economical. Western India Plywoods at Baliapatam have been able to execute orders for bamboo boards developed at the Forest Research Institute. Six of the existing mills are being expanded. Although there are 17 board mills in the country, only four are considered economic units, with a total capacity of 45,000 tons, although actual production is much lower.

Afforestation Provides Domestic Trade Boost

John T. Smith, managing director, A & G Paterson Ltd., Glasgow, which has been operating in Lanarkshire since 1824, writes The LUMBERMAN: "The prospects of the home timber trade are governed by the importation program. In the years to come, home timber is likely to take an increasingly more active part in the trade of this country, but when the full program has been achieved, that extent, except in mining timber, is not likely to exceed one third of the consumption of timber in this country (on present-day level)."

Mr. Smith has been with the company since 1917. Since the end of World War II the company has expanded considerably, using large quantities of German softwood logs as raw material. Modern dry kilns were erected at Banchory and Glasgow during the war, and more recently the company has been active in afforestation work on the lines laid down in 1942-43 by the Scottish home timber trade. A tree nursery is maintained at Scotston, near Aberdeen, and two-year seedlings grown there are sold ready for planting.

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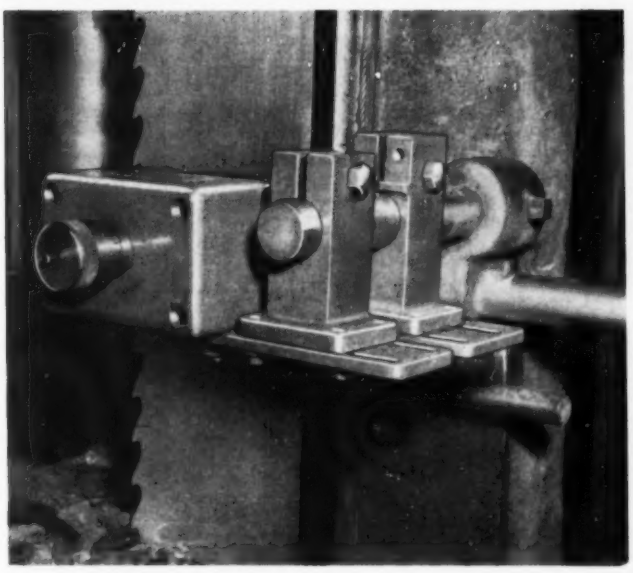

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ABOVE — Moving logs by Turkish "skyline" at Ayancik, located in the northern part of Turkey on the Black Sea coast. The length of the haul, from Duduncuk to Ayancik, is around 19 miles. 300 cubic meters can be hauled in eight hours. Two 75 HP steam engines powered with fuel wood operate the pull cable. BELOW — Hauling true fir (Abies) logs from Dursunbey to Candero, in Western Turkey, to be sawn into lumber. The locomotive, an Ornstain made in Germany, will pull 15 cars maximum. Haul is 20 miles.

TURKEY

Strictly forest lands	*26,000,000 acres*
Productive high forests	*2,500,000 acres*
Productive coppices	*6,200,000* acres
Neglected forest areas	*17,300,000 acres*
Total standing timber	*13,241,250 cu. ft.*
Total volume, productive forests	*5,296,500 cu. ft.*
Total volume, productive coppice, fuel wood and unproductive land	*7,944,750 cu. ft.*
Annual Average Output, construction timber	*37,517,515 cu. ft. (1944-49)*

Turkey, with nearly 26 million acres of forest land and a population of 21 million, has the highest forest area per capita in the Eastern Mediterranean sector. About one-tenth of the total forest area is classified as "productive high forests". The state owns most of the timber and private ownership is unimportant. The main species are pines (38½%), oaks (22%), beech, fir and spruce. The best forests are found in the central and western parts of the Black Sea zone, on steep, mountainous slopes where there is favorable climate and rainfall. Due to inaccessibility, heavy, mature stands of the major species still stand uncut.

Timber requirements. There are annual deficits in sawtimber, pulpwood and pit props. The Secretary of the Timber Committee recently reported, "The Turkish builder has a marked preference for pine and oak. Consequently, the oak forests have nearly disappeared. It is cheaper to use imported fir than the expensive native firs."

Plywood. There are four factories in Istanbul with an annual capacity of over 600,000 cubit feet. There is also a new factory near Zonguldak with a capacity of 350,000 cubic feet. Home requirements do not meet the output, so considerable exports are possible.

Turkish Forest Service. This body operates entirely on the income from the sale of forest products, rentals and services rendered to private and institutional forest owners.

OMER OZEN
Supervisor of Government Sawmills, Ankara, Turkey

Mr. Omer Ozen, who is Supervisor of Government Saw Mills, has reported to THE LUMBERMAN as follows: "The National Forests represent 95% of the whole forest area of Turkey; the remaining part, 5%, consists of the private forest area. The organization of the Forest Service in Turkey is similar to the United States. All exploitations which take place in the national forests are conducted by the Forest Service.

"The Trees to be cut must first be stamped by a forester. Logging and transportation are controlled by the foresters. The forest service sells logs outside the forests; they also saw lumber and then sell it. Falling and bucking is done by hand saws. The transportation is done by different methods (horses, bulls and carts) and is accomplished by villagers living near the forests. Long hauls require trucks, and in certain areas a narrow-gauge railway is used to bring out the logs.

"There are 50 sawmills in Turkey, 10 of which are State-owned, the other private. The capacities vary from less than 900 to over 14,000 cubic feet per eight-hour day. We use only gang saws in sawing the logs. The power in the sawmills is all steam. There are ten private plywood plants and two state pulp mills."

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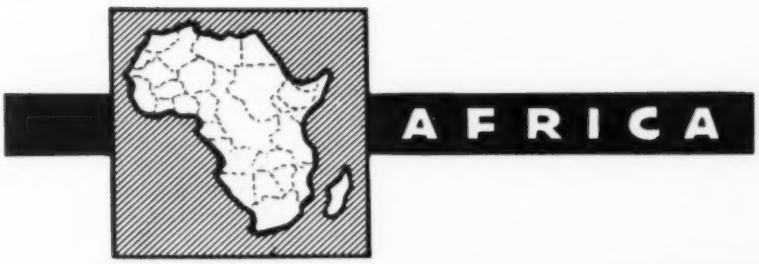


FRENCH CAMEROONS

Total forest area....71,164,800 acres
Accessible productive forest area .....5,683,300 acres
Annual log production .....8,942,000 cu. ft.

Mr. Pierre Vetter, president and general manager of the Cameroons Lumber Co., which owns a lumber operation at Eseka in the French Cameroons, Africa, has sent THE LUMBERMAN a very informative report on the forest situation there, as follows.

Modern Lumbering in The French Cameroons

The territory of French Cameroons provides one of the most interesting forestlands of Equatorial Africa. This timbered area is estimated at 24 millions acres. Owing to present conditions of roads and other lines of communication exploitation of only five millions acres can be contemplated.

Until 1945 timber exported from this country consisted mostly of round-logs of precious species for European and American veneer factories. Quantities shipped averaged 1.2 millions cft., local consumption 5 million board feet.

Since 1946 considerable efforts have been made to finance and develop the Territory generally, and in 1952 total production of miscellaneous logs reached 9.5 millions cft., of which 2.4 millions cft. have been exported as well as 9.7 million board feet of sawn timber. The remainder has been used for local construction work.

Nevertheless it should be emphasized that 1952 has been a critical year, but in the event of a trade revival these figures could be greatly increased on account of the industrial potential of the country.

Loading one of the Cameroon Lumber Co.'s eight Kenworth trucks with an "Orton" crane. The haul to the mill averages 35 miles. The Kenworth has a Cummins diesel 275 HP engine.

Equipment from U.S.A.

Founded in 1947 to develop lumber production in the Cameroons, the Société "LES BOIS DU CAMEROUN" (Cameroons Lumber Co.) has built and equipped a modern sawmill at Eseka, in the middle of a 500,000 acre concession of virgin forest. Practically all equipment has been imported from U.S.A.

The mill is rigged with two headbandsaws (10' and 8') with carriages fitted with automatic dogs, one seven-foot band-resaw, two edgers, one slasher and one trimmer, all from the Prescott Co. of Menominee, Mich., with the exception of gangsaw.

The power house utilizes two Wickes boilers and one G.E. turbo-generator. At present two "Standard" dry-kilns and a remanufacturing plant are under construction.

Doubled Output Possible

The daily output of sawn timber with one shift (8 hours) reaches 50,000 board feet and is still increasing. The present figure could be doubled without additional equipment.

Forestland exploitation and road-building utilize sixteen D-8 Cats, one D-7, one Scraper 14 Y 3, one Autopatrol No. 12. Truck loading at camp is done with three "Orton" cranes. Eight Kenworth trucks (Cummins engine 275 HP) manage road haulage to mill, an average of 35 miles.

LEFT—Ekki log on carriage of the 10-foot head bandsaw at Cameroons Lumber Co. sawmill, Eseka, French Cameroons, Africa.

RIGHT—Inside view of the Cameroons Lumber Co. modernly equipped sawmill. Practically all equipment has been imported from the U. S.

Nearly 1000 Employed

The Company carries out all necessary construction, including industrial buildings and workshops, bridges, living-quarters, etc. At present, personnel consists of seventy whitemen, mostly French, and approximately nine hundred natives.

Timber handled and commercialized includes the following species: Ekki, Ilomba, Limba, Mahogany, African walnut, Doussie, Dahoma, Moabi, Ayan, Iroko, and Bubinga.

Further developments are contemplated including flooring and wall-boards workshops.

LOGS AND LUMBER PRODUCTION— FRENCH CAMEROONS

Years	Number of Operations	Logs (1000 cu. ft.) Total Production	Sawn Timber (1000 bd. ft.) Total
1938	.....	2924	6564
1945	43	2948	8656
1946	41	3523	12.815
1947	64	4030	14.695
1948	69	5210	16.335
1949	84	6620	21.279
1950	85	8345	22.553
1951	85	8942	28.338

FRENCH WEST AFRICA

Accessible productive forests .....63 million acres
Annual log production .....217 million bd. ft.

The Societe Anonyme des Placages et Contre-plaques of Abidjan, French West Africa, is reported to be operating and producing veneer and plywood at the rate of 3000 cubic meters annually (about 3,390,000 square feet 3/8-inch basis).

This company (known as S.A.P. C.I.) was formed in 1948 and is a division of the Scieries de L'Equateur, a lumber mill founded at Abidjan in 1930. The original firm has limited its activities to lumber for local consumption, whereas the SAPCI will specialize in high quality mahogany veneers and plywood.

There is no supply problem, for the plants are located in the center of the most important lumber producing area of French West Africa, with transportation by railroad, river or highways. The company is to process 30,000 cubic meters of timber, with 40% going to the veneer-plywood end.

Equipment at the sawmill includes four band saws and one alternating horizontal saw which can handle logs up to about 43 inches in diameter and about 24 feet long. There are also five circular saws and three slicing machines.

In the plywood plant, there are four planing machines, a dry kiln of two cubic meters per hour capacity, two 10-stage hydraulic presses, two continuous jointers, three overhead cranes, three scraping and sanding machines and four trucks.

Plans call for the manufacture of the highest grade veneers (fancy and figured face) and plywoods exclusively from mahogany. Most of the production is for export, particularly to Algeria and Great Britain.

GOLD COAST

ValuableWoods Attract Modern Installations

Total area of forest .....58,433 square miles
Percentage of total land area....63.6
Logs exported (1950).....10,692,000 cubic feet
Logs for local sawmills.....7,534,000 cubic feet
Gross value timber exports 1946-1950 .....$30,000,000
Sawmill capacity .9,000,000 cubic feet

Exports from the tropical Gold Coast forest areas had a value in 1950 four times that of 1946, and there has been appreciable increase since then as a result of the development of the veneer and plywood industry, largely through such operations as Unilever's United Africa Corp. By 1950 some 500 firms or individuals had registered to operate in timber either as producers or shippers, compared with only 27 shippers four years ago. Log exports between 1946 and 1950 were trebled. Mahogany was about the only species exported during the war years, but sapele and obeche are also in favor now.

Hand hauling of logs to road or railside, which had been customary for many years, had virtually ceased by 1946, when tractors with winches became dominant in the woods. Log lorries and trailers have been extensively used, and mobile cranes more sparingly.

The sawmill industry has been revolutionized by establishment of modern plants equipped largely with U S. machinery. There is a tendency now towards fuller utilization of the log at point of origin either by manufacturer of lumber, veneer or plywood rather than export of the raw material, as was done formerly.

LEFT—Log hauling, "new" style, showing use of logging arch in The United Africa Co. Ltd.'s West Africa operations. This type of log extraction has recently been substituted for the manual labor for reasons of (1) difficulty of obtaining labor and (2) mechanical equipment proving more economical. (Photo courtesy R. W. Norton.) RIGHT—African Timber & Plywood's log pond at Samreboi, Gold Coast. The company has a 900 square mile timber concession and has built this artificial log pond rated at 10,000 tons capacity. Timber will go to mills in background. (Photo courtesy P. R. O., ACCRA.)

KENYA

Total area of forest 5,525 *square miles*
Percentage of total land area 2.5
Total log sales to sawmills 1950 (hardwood and softwood) ..7,425,000 *cubic feet*
Sawn Timber production .60,000 *tons*

About 65 sawmills are currently being operated in the British colony of Kenya. Pulp and paper are so far not produced, and plywood production is insignificant. Some 5000 to 6000 tons of "cedar" pencil slats are produced annually from Juniperus. Unfortunately this is regarded as one of the most wasteful uses to which this wood can be put, since only the best quality of timber can be used, the recovery being only about 20 percent of the log volume. The remainder is broken into sizes too small for any purpose other than fuel.

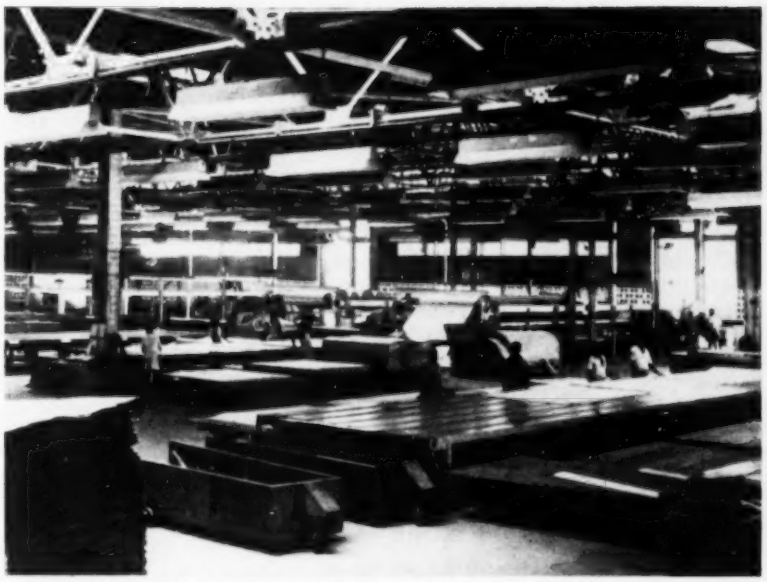
According to the colony's conservator of forests, the indigenous forests are being heavily overfelled, but most of the production in the past has been from slow-growing indigenous woods and gratifying progress is now being made in planting quick-growth exotic species. Thinnings from these plantations have given substantial yield,, but not for 15 years will the colony derive full benefit from the new trees. The problem is to bridge the gap between now and then, when most of the native forest will be gone.

The industry employs about 5000 resident laborers and 500 casual laborers. Tractors are used for hauling logs from stump to the loading depot. In some cases tractors haul all the way to the mill, but few of the machines are equipped with hauling winches. Ox teams are still used at some mills. From the road loading point to the mill, logs are usually hauled by lorries or by ox wagons. The forests are usually in deep soft soils, and the roads and hauling tracks are cut up into a morass of mud and slush during wet weather.

NIGERIA

Total forest area.....127,734 *square miles*
Percentage of total land area....34.3
Annual consumption of round timber.....25,000,000 *cubic feet*
Annual lumber production.....2,000,000 *cubic feet*

In view of the primitive nature of much of Nigerian territory and the unrecorded use of timber by native tribes estimates of wood consumption are little more than a guess.



INTERIOR OF PLYWOOD MILL at Sapele, Nigeria. The plywood produced here is rotary-cut, exterior waterproof hardwood plywood, generally faced with mahogany or sapelewood. Plywood is crated before shipment, with stacking done by electrically operated fork lifts. (Photo courtesy The United Africa Co. Ltd.)

Timber exploitation in Nigeria has been largely based on salvage felling —an involuntary race to fell the timber on potential farmlands and utilize it economically before it is burned and destroyed by the farmers.

One of the most important factors in Nigerian wood utilization is the plywood plant of African Timber & Plywood Co. (Lever Bros.) at Sapele with an annual intake of about 1,000,000 cubic feet of round timber.

Shortage of labor, and higher wages have greatly increased the use of mechanical equipment for extraction and conversion of timber. The Sapele plant is highly modern, equipped with machinery from Canada and the U.S. as well as the United Kingdom.

NORTHERN RHODESIA

Total forest area.....116,000 *square miles*
Exploitable hardwoods.....21,477 *square miles*
Potentially exploitable hardwoods.....54,523 *square miles*
Percentage of total area.....40
Value of timber production $2,550,000

The forest industry has been geared largely to the requirements of the copper mines, which account for 80 percent of Rhodesia's income. Rhodesian teak is the principal export, mostly to the United Kingdom and South Africa, but the exportable surplus of this species is declining. Zambesi Sawmills Ltd. fells and saws about 2,000,000 cubic feet of teak annually. Some of the wood is used by the Rhodesia Railways for ties. The mines consume about a million cubic feet of saw logs annually.

C. E. Duff, conservator of forests, states that improvement in utilization in recent years has not been so much due to introduction of efficient and modern equipment as to closer conversion of logs and elimination of waste. A factor that influences forestry, he says, is the "citemene" form of shifting cultivation practiced by all the woodland-dwelling tribes. A family may fell from 20 acres (on the poorest granite soils) to 5 acres of woodland each year. The branches and wood are cut up and stacked in large heaps and kept through the dry season and burned before the rains break. The crops are then sown in the ash. The areas of woodland consumed by even one small village are often large.

NYASALAND

Total forest area.....6,803 *square miles*
Percentage of total land area....18.3

The forest industry has not been intensively developed, and about 73 percent of all the wood used goes to firewood. Most of the wood imported is in the form of box shooks and plywood tea chests. Timber exports have been confined to the produce of exotic plantations, mainly eucalyptus grown on private forest.

SOUTHERN RHODESIA

Total forest area.....88,602 square miles
Percentage of total land area....58.9
Value of home grown wood output.....$2,115,000
Value of wood products exports, including derivatives....$2,915,000

Most of Southern Rhodesia's sawmilling operations are in the state-controlled indigenous forests, and three mills produce a total of nearly 3,000,000 cubic feet, the species being Baikiaea plurijuga and Pterocarpus angolensis. There are no statistics indicating the extent of exploitation on private forests, but it is estimated that there are about 30 small mills there, utilizing about 4,000,000 cubic feet of logs annually.

Exotic tree species have been planted in recent years in the state forests, and some commercial production has been obtained. A few plywood plants have been opened, getting their logs chiefly from the Belgian Congo and Mozambique.

Tractors (D4's and D6's) have been tried out with some success in the logging operations, but the abrasive action of the sandy soil is a disadvantage. A wheeled tractor with a hydraulic scoop for loading has been found efficient. Use of mechanical saws, dictated by labor shortage, is still experimental. Most of the log hauling to the roadside is still by ox team, and the logs are then loaded by manual labor to 3-ton trucks, some of them diesel-powered, especially where the distance is considerable. There has been a trend towards greater utilization.

SUDAN

Total forest area.....360,000 square miles
Percentage of total land area....39.2
Output of home grown timber.....982,400 cubic feet

There are seven small sawmills in Sudan, operated by the government, with a capacity of 250,000 cubic feet per year. Pit sawyers produce another 300,000 cubic feet of railroad ties.

Provision of roads and transport is the key to extension of the Sudan's exploitable timber areas, all of which are in the south, so that a long and costly desert haul is usually necessary. Machinery is gradually replacing manual labor, and band saws are taking the place of circular saws.

TANGANYIKA

Total forest area.....195,000 square miles
Percentage of total land area....56.9
Annual output of home-grown timber.....20,000,000 cubic feet

The general picture for the past five years has been of steadily increasing production now approaching the permissible maximum, according to W. J. Eggeling, conservator of forests for Tanganyika.

There are about 50 sawmills in Tanganyika, most of them quite small. Sawmills are already working in all the main high forest areas of the territory and no further overall extension of exploitation in them can be allowed. These high forests are probably being overcut, according to Mr. Eggeling, and while the intention is to replace them with plantation stock nothing has so far been done in that direction.

Extraction of the logs from the woods is usually by tractor, Caterpillar D6's and D7's and International TD 14 and TD 18 being favored. The logs are mostly dry skidded as few mills possess either skid pans or arches. Arches would probably require wider and better haulage roads than are usually made, says Mr. Eggeling, and that is a drawback, although there is no reason why more use should not be made of skid pans.

Extraction by cable is normally out of the question because of the large size of the logs and the low stocking. Logs are often hauled by tractor as much as two miles, frequently over unnecessarily steep slopes, on logging roads on which wheeled tractors of the "Unipower" type could operate satisfactorily.

In the lowland woods, five and three-ton trucks are being extensively used for log transport, and it has been suggested that better use could be made of trailer-type vehicles. In some areas logs have to be carried 50 to 100 miles from mill to railhead and with five ton gas trucks this is a costly business. Diesel trucks carrying up to 20 tons are suggested by Mr. Eggeling.

UGANDA

Total forest area..6,673 square miles
Percentage of total land area.....9
Exploitable hardwood forest.....2,026 square miles
Value of timber production (1950).....$8,452,000

Restrictions have recently been placed on the cut of mahogany with a view to having it more in line with the rate of growth. Production was at its peak during the war years, when it was realized that commercial exploitation was excessive from the standpoint of good forestry. There has been a notable increase in the utilization of secondary woods during the past two or three years.

J. Hathorn Hall, governor of the Uganda protectorate, points out that a long-term program of development is imperative and that his government realizes that during the coming decade the primary task of the forestry department will be completion of the forest estate through survey and improvement of the best known sites. About 30 percent of the forest estate is now under planned management, and plantations are being established with mahogany (Khaya anthotheca and iroko) and Uganda walnut, and also with softwoods (cypress and pines).

The present milling output in the protectorate is about 21,000 tons a year, and it is considered doubtful whether with present machinery and first-class management this can be increased by more than 50 percent. Uganda hopes to profit from recent visits by representatives of the U.S. lumber industry, appointment of a forest engineer and the marketing of timbers hitherto unsaleable.

"The demand of the African for cheap building, joinery and furniture timber is in theory stupendous, though as yet largely unrealized," reports the Uganda forestry department, pointing out that the possibilities of using small-sized eucalpytus for these purposes have been demonstrated by an enterprising technical school equipped with a small circular saw.

UNION OF SOUTH AFRICA

Strict Planting Policy Pays Off Handsomely

Annual lumber production....25 million cubic feet
Volume of imported lumber.....34 million cubic feet

Until recently, the Union of South Africa has been dependent on imports for nearly all her timber requirements. The very meager native timber supplies have never been of real significance. Most of the gen-

eral construction lumber was imported from the Scandinavian countries; for better class work and in cases where larger timbers were required, Douglas fir was brought in from Canada and the U.S. Railroad ties were imported from many countries, also packaging materials.

Tree planting, which was initiated more than 75 years ago, was stimulated by World War I, reports J. H. Van Wyk, chief forest products officer of the Forest Products Institute, Pretoria. Since 1918, the government has been directing the planting of 15,000 to 20,000 acres a year as a firm policy. This policy paid off during World War II when some young stock was cut for essential purposes.

Because of the relative lack of timber, the sawmilling industry developed so slowly that the vital link between the forest and the distributive timber trade did not exist in South Africa until quite recently. In 1935 the department of forestry established an experimental sawmill at Elandshoek, Eastern Transvaal, to test the qualities of the thinnings from the older plantations—6 to 8-inch diameter pine logs considered suitable for box production.

Sawmill Industry Expands

This mill marked the advent of state sawmilling, and during World War II the industry expanded to such an extent that eleven mills with a combined annual capacity of 7 to 8 million cubic feet have been established by the government alone, while seven mills, with an annual capacity of 16 to 17 million cubic feet, have been operated privately. The yield of sawlogs from state plantations has increased from 6.7 million cubic feet in 1940 to 18.5 million cubic feet in 1950. Volume from private plantations is estimated about 6 million cubic feet.

Packaging is one of the main uses of lumber in South Africa and the requirements run into many millions of boxes every year. In 1949, South Africa used 5,800,000 cubic feet of softwood box shooks of which 2,000,000 were imported, and 36,000,000 cubic feet of building timber of which 32,000,000 cubic feet were imported.

Native hardwoods, mostly black wattle and various gums, are of minor importance in the economy of the Union. The wood is knotty and the trees are seldom allowed to grow beyond pole size. The major market for eucalypt trees grown in South Africa is mine props.

Progress Reported in Logging

Young plantation timber and poles are being used extensively for all purposes. Logs in sizes down to 3 inches top are utilized for production of lower grade agricultural boxes and crating. Logs running from 5 to 10 inches diameter but with the bulk about 6 inches are used for production of higher class packaging material and building lumber. Young hardwoods are used for end-matched strip flooring, block floors, tool handles, furniture, etc. Small wood from the plantations supports a growing pulp, paper and hardboard industry.

If and when exchange conditions become normal South Africa will be buying again in North America. Meantime the Baltic lands will continue as the main source of supply. Plantations are being encouraged, with the result that an increasing percentage of the wood used will be from them.

U. S. S. R.

Rapid Mechanization In Logging in Russia

(Editor's note: The following statements are based on the book "Logging Mechanization in the USSR" written by A. Koroleff, director of woodlands research for the Pulp & Paper Research Institute of Canada, Montreal. The book contains 158 pages, 46 illustrations and is obtain-

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able for $5.00 from the McGill University Book Store, 3480 University St., Montreal. It is dependent on the translation from original Russian sources of about one hundred articles on the subject of logging in Russia.)

Since 1946, the USSR has been changing its logging from a seasonal, manual occupation into an organized, mechanized industry with a permanent labor force. From current Russian logging periodicals, it appears that this movement, started under top-level orders, has been strongly supported by research, and has been liberally financed. It seems that about 800 million dollars have already been spent on this effort. Now, apparently, most of the heavy work in logging is done mechanically, principally with electric power.

Departures from the orientation of the Russians on American-Canadian logging methods and machinery are increasing. Liquid fuel is still used a good deal in logging machinery, but the trend is toward a complete application of the idea that the forest being logged should itself supply the power required. The principle that the commercial wood should be cut and extracted from the forest by power derived from the wood of low or no commercial value (including slash) already has very wide application, chiefly through the use of improved gas producers. It is claimed that new models of gasogenerators for mobile logging equipment are satisfactory even when they use green wood of small dimensions (1¼"-3½" in diameter, 20" long).

Electric Saws Used

Logging and manufacturing are essentially separated. In manufacturing, integrated operations are the rule. Timber cutting is done mostly by light-weight, high-frequency electric saws, operated from small, portable power stations run by producer gas generators using waste wood. Skidding is done with special crawler tractors run on producer gas and skidding tree lengths in semi-suspended loads, or with electric cable skidders. Many, if not most, logging trucks are run on wood. Narrow-gauge logging railways are in common use. Cable skidders, many loaders and some other electric machinery are operated by large portable power stations at the landings.

There is a strong drive under way to eliminate the wasting of wood. Some timber is mechanically skidded (and occasionally even transported by trucks or logging railways) with crowns on, with the object of minimizing the work at the stump and substituting the utilization of slash for costly disposal by burning.

There has been considerable grief in the USSR in the efforts to revolutionize logging and to do so rapidly. Insufficient and inadequate woods labor, high turnover, a tendency to cling to high seasonality of work, an insufficient number of all-season roads, poor use and maintenance of machinery, and poor housing, especially in new logging areas, are among the major difficulties that have not yet been fully overcome. However, apparently most of the labor force is now employed the year round; and it is stated that the productivity of logging is increasing at a rapid pace, encouraged by a bonus system. Since the total cut of timber in Russia has also been growing rapidly, it would be well to watch these developments more closely.

Washington's Forest Products Institute Draws Bead on Woods, Mill Residues

Forest industries research in Washington is the job of the Institute of Forest Products, with headquarters at the U. of W. College of Forestry; Prof. J. Kenneth Pearce is acting director. Guided by a nine man industry - labor - educator - research commission with Governor Arthur B. Langlie as chairman and Col. W. B. Greeley as vice chairman, the Institute operates on a biennial appropriation from the State.

Biggest project of the Institute has been the state-wide Inventory of Unused Wood. Researchers discovered the cause and location of untold millions of cubic feet of "wood leftovers" in the woods and at sawmills and other prime wood-using plants. The Inventory included a study of pulp cordwood available on woodlots.

Research jobs following the original inventory have been aimed at actually doing something about the tremendous wood residue. A study was made of the best equipment adaptable for logging salvage and second growth. Time and cost studies were conducted in the field to determine the most efficient types of yarders and loaders. In utilizing woods residue the main factor is to bring out the usable material at lowest possible cost, since salvage at best is a marginal operation. Institute foresters settled on 500 feet as the economic limits for yarding salvage.

Chemical debarking (pre-killing the tree with sodium arsenite and letting it stand several months before logging, at which time the bark easily falls or rubs off in felling and handling) has been a major project for several years. A number of plows are now under cooperative management by the Institute and various private owners.

Some of the other completed projects are: small mill studies, log splitter for extracting sound material from old-growth windfalls; uphill felling, best economic truck size, and portable barking equipment. A study to determine the best economic age for harvesting second growth has been planned for the future. Bulletin No. 13, "Portable Band Mill Integrated With Logging", was published earlier this year. It is a study of the Tufts Lumber Co. at Chehalis, Wash., which gets more value and volume from red fir timberlands than was previously thought possible. This bulletin is available from the Institute, gratis.

The most significant development is keynoted by the Institute's estimate that, following completion of the 1949 inventory of unused wood, 20,000,000 cubic feet of manufacturing plant residuals are now being utilized as wood chips for pulp mills. Much but not all of this figure is wood that was a "nuisance" waste, previously requiring further expense to burn or remove; the remainder formerly went into low-grade fuel.

C. Jack Kantzer is assistant technical director and Thomas E. Collins is logging engineer.

South's Logging Efficiency Up

Continued high stumpage prices in the South in combination with scarce and expensive labor have contributed to greater mechanical efficiency in the logging end, currently expressed in rather general acceptance of the power chain saw as an essential part of the woods operation. Another resultant trend is the relegation of the "bob-tailed" small truck to in-woods or short woods-to-mill tasks, with the well-powered truck-trailer units designed for big loads taking over on longer hauls on hard surfaced roads. The trend toward more efficient log trucking is emphasized in some company forest holdings by construction of better access roads with flatter, easy-vision curves and gravel surfacing resulting in quicker turnaround trips by the trucks.

American Forest Products Industries Reports 27,672,228 Acres in Tree Farms

More than 2,500,000 acres of crop-producing, tax-paying forestland were added to the American Tree Farm System during 1952. A total of 4,209 units in 35 states, with a total area of 27,672,228 acres, were listed on the official Tree Farm rolls as of December 31, 1952. The state-by-state tabulation follows:

STATE	ENTRY DATE	UNITS	ACREAGE
Alabama	1942	425	2,611,414
Arkansas	1942	241	3,005,258
California	1942	132	1,596,967
Colorado	1951	3	75,280
Florida	1946	77	1,306,734
Georgia	1948	62	1,008,151
Idaho	1943	110	697,498
Louisiana	1951	64	1,338,605
Maine	1952	4	9,146
Maryland	1948	6	2,347
Massachusetts	1948	32	29,895
Michigan	1949	303	669,179
Minnesota	1950	282	279,001
Mississippi	1944	370	998,066
Missouri	1949	39	100,788
Montana	1944	47	853,955
Nevada	1951	1	12,984
New Hampshire	1950	92	70,437
New Jersey	1946	17	9,971
New Mexico	1947	1	80,000
North Carolina	1944	77	613,812
North Dakota	1949	95	38,247
Ohio	1946	283	80,747
Oregon	1942	78	2,892,118
Pennsylvania	1947	162	140,236
Rhode Island	1949	28	4,459
South Carolina	1946	102	1,138,220
South Dakota	1952	36	1,355
Tennessee	1946	286	407,368
Texas	1944	441	3,299,789
Virginia	1947	86	403,171
Washington	1941	159	3,055,150
West Virginia	1948	56	155,936
Wisconsin	1944	10	628,127
Wyoming	1951	1	40,557
TOTAL	35 States	4,209	27,672,228

Loggers and lumbermen are famous for inventing words of their own to fit some piece of equipment or some operation for which Mr. Webster failed to provide the proper descriptive terms. Some of these, like "chunkout donkey," "cheat stick," "donkey puncher," "Molly Hogan," "whistlepunk" and "widowmaker" have given logging a colorful language of its own. Twelve years ago a new term came into limited use, a pair of words that promise a long and healthy future for logging and lumbering. The term was: "TREE FARM."

Today the same words are an integral part of every lumberman's vocabulary. "Tree Farm" is also becoming accepted by the general public. They see signs along the highways in forested areas, they see the name in newspapers and magazines and children learn about tree farms in school and club work.

America's first tree farm was dedicated in 1941. It was the Clemons Tree Farm owned and operated by Weyerhaeuser Timber Co., near Montesano in Southwestern Washington. Since then the program has mushroomed into over 4000 privately owned tree farms comprising some 27 million acres in 35 states. Owners run all the way from farmers who are managing their woodlots on a permanent basis to schools and civic groups and to the large, integrated, timber-owning, timber-using companies.

Some examples of the latter are The Diamond Match Co., Stirling City, Calif., Michigan California Lumber Co., Camino, Calif., and Crown-Zellerbach Corp., Vernonia, Ore., in the West; The Urania Lumber Co., Ltd., Urania, Louisiana, and the Kirby Lumber Co., Houston, Tex., in the South; and the R. B. Goodmar Lumber Co. in Wisconsin and Consolidated Water Power & Paper Co., Wisconsin Rapids, Wis. The last two companies' operations are known as "industrial forests" and are incorporated in AFPI's system.

Owners to Observe High Standards

How does a forest ownership acquire the name "tree farm"? Each tree farm tract must be inspected by one of the regional tree farm "certification" organizations to see if it meets the standards of good management and protection. If it meets all the requirements, it is "certified" and becomes a member of the American Tree Farm System. The owners agree to keep their lands protected and productive, according to a long-term plan.

Tree farm certifying agencies are: for the Douglas fir region—Industrial Forestry Association; for the western pine region—Western Pine Association; for the redwood region—California Redwood Association; for the South—Southern Pine Association. Various regional associations make certifications in other parts of the country. American Forest Products Industries, Inc., Washington, D. C., an all-forest-industry group, organizes and assists in the tree farm program but leaves management and direction up to the local groups.

Demonstration Days Held

Efforts made by the above groups to encourage small owners to become tree farmers include any or all of the following: Interested forest owners are contacted either individually or in groups and informed of the program's possibilities. Field days have been held to demonstrate to local land owners what can be done by converting their forest lands to tree farms. Local committees have been formed, largely made up of forest products industry personnel, to encourage tree farm program.

Assistance given to the tree farmer, and prospective tree farmer, aids him in converting his timber stand to thrifty growth condition, in protecting stand from diseases, insects and

(Continued on page 217)

PULP MILLS REPRESENTING LARGE MARKET FOR CHIPS

As sawmills and veneer plants throughout West, South and B. C. produce record amounts of chips in vast wood conservation effort

Two great industries, the pulp-paper and lumber industries, are cashing in on one of the most amazing trends in the history of wood utilization, that of chipping sawmill, veneer and wood-processing leftovers to get raw material for paper pulp. This revolution had its birth in the Pacific Northwest; it has spread considerably and is now gradually taking hold in the South.

Each industry benefits from this development for very practical reasons. The sawmill or wood-plant operator can now convert edgings, trimmings and slabs and planer scraps into chips and sell them at a welcome profit to a nearby or even a distant pulp mill. In this operation he gains two ways: he makes a profit on selling the chips, while at the same time doing away with the nuisance of burning leftovers or hauling them off the site. Some mills which sell firewood are finding a higher value for chips than for the former use.

One hidden advantage of doing away with a burning pile of mill leftovers is that the fire insurance costs on such sawmills drop very sharply. An experienced engineer with one of the leading fire insurance firms in the West states that in every case where a mill is burning its waste, they are losing money on the operation.

Pulp Industry Conservation-Minded

On the other side of the fence, pulp mill management finds that their advantage in buying chips lies not so much in the financial field as in the conservation field. A large paper company on Puget Sound has been buying an average of 100 units of chips per day. Although conversion factors are subject to variables, such as species and moisture content, the figure 435 feet of logs equals one unit of chips is a fair basis for conversion. Thus, this paper mill saves 43,500 board feet of logs every day. Carrying the figures over a year the saving would be roughly 10 million board feet; in a decade the saving would be well over 100 million board feet.

In these days of the high cost of owning, protecting, harvesting and transporting logs to market, this is also a welcome financial saving.

For pulp companies who are operators of their own tree farms the saving in timber alone may prove very attractive from the standpoint of getting their holdings under better management. A wood-using operation depending upon its own company tree farm to supply raw material in perpetuity must have trees in all stages of growth, from seedlings to mature timber. A company under these circumstances can help "bridge the gap" between overcutting and sustained yield by the purchase of chips and a resultant lessening of cutting in stands of ages which are not economically ripe.

Hardboard Possible Future Market

Expansion of the hardboard industry has opened a great market for wood leftovers. However, most hardboard plants are tied in with plywood plants or sawmills and are not active purchasers of chips on the outside. If and when the day arrives when hardboard plants cannot meet demands from their own chip production, they would probably enter the field as purchasers.

How much can a small sawmill owner make by selling chips? And how much waste must he have available for chipping before it would pay him to install a chipper? And what about barker—would it pay to install one? No one can give a stock answer to these questions for the reason that every mill presents a complete set of conditions that only the management can study and answer. Prices range all the way between $5 and $20 per unit, depending upon the species, quality, handling and transportation costs and the price of logs. Many mills find a chip market "right in their own back yard"; others send them several hundred miles by rail. Some mills have fast, modern barkers and chippers and well-designed handling facilities. Others are removing bark from slabs by hand.

Mr. Lawson Turcotte, president of the Puget Sound Pulp & Timber Co., Bellingham, Wash., told THE LUMBERMAN that last year his company purchased over 73,000 units of chips, the approximate equivalent of 32 million board feet of logs. Their chips come from British Columbia. Mr. Turcotte's company has in the past aided primary processers financially in setting up chipping operations. He states that they would, if necessary, finance further chipping installations, but only if they were sound investments.

Over-Supply Warning Given

A warning against an over-supply of wood chips has been sounded by one pulp executive. He believes that many mills have gone as far as they care to go in their chip-buying programs and that if too many new supplies of wood chips enter the picture that there would result an unhealthy effect on the overall industry program. He thinks that sawmill men should not raise false hopes for chips until the market has grown enough to justify further production.

The Coos Bay Pulp Corp., Empire, Ore., has in the past met its chip requirements in its own plant. A report to THE LUMBERMAN by Plant Manager Earl F. Anderton says the company has explored the possibility of starting a chip-buying program but that there are several snags involved. For instance, the Coos Bay plant produces unbleached sulphite pulp and can use only hemlock, white fir and spruce; however, these species are not too abundant in that area and transportation costs are too high to allow chips to be shipped in. One way chipping would be practical: if the sawmills would sort their logs and cut only sulphite species for short periods. It is quite difficult to attempt to sort the desired species from the refuse containers. In lieu of chip-buying, Anderton says that pulp-wood purchases from small ownerships and salvage operations would allow the company to carry on a more effective conservation program.

Buying May Be Stepped Up

St. Helens Pulp & Paper Co., St. Helens, Ore., is undergoing a present expansion program, which will give them subsequent increased capacity. Timber Superintendent Brice Hammack says that chip handling facilities may be increased after the current expansion is completed; this would allow their chip-buying to be stepped up substantially (from the present five-minus per cent of wood consumption that chips represent).

Masonite's Forest Manager at Ukiah, Calif., Roy G. Wagner, explains his company's chip program. "Our chip purchasing program is just getting under way but we expect to be going strong along this line before long. These chips are produced at sawmills from sawmill waste. The stimulation of outside production of chips requires considerable developmental work and may in some instances result in our participation in the installation of chippers.

"There is no doubt that our utilization of low grade logs, pulpwood and chips has and will enhance the utilization picture within an economical transportation radius of our plant. Pulp production enables the logger to utilize the available material more fully and the sawmill to utilize a great deal of material which previously went into the burner."

Hemlock in Competition

One West Coast paper manufacturer buying hemlock, spruce and true fir chips is actively engaged in increasing its volume of outside chips. They experience the same problem as other sulphite mills, that of encountering competition for hemlock and true fir chips. The company states that it is vitally interested in closer utilization of all wood material so as to stretch the available wood supply for itself as well as for its competitors.

The Longview Fibre Co., Longview, Wash., whose new central chipping plant at Eugene, Ore., is described in this issue, was one of the pioneers in buying chips. "Longfibre" buys a very great volume chips annually and in so doing utilizes the equivalent of millions of board feet of timber not previously credited in forest inventories.

Weyerhaeuser Timber's Savings Tremendous

Weyerhaeuser Timber Co.'s program in recent years has been aimed at more complete utilization—in the woods in use of low-grade logs previously left on the ground and in the pulp mill sawmills in reclaiming more leftover wood. The addition of barkers in the sawmills has meant even more usable leftover wood; hence it has not been necessary to go outside for chip purchases.

A reliable estimate of the number of chippers in the Douglas fir region, other than in pulp mills, was recently made by W. D. Hagenstein, forest engineer for the Industrial Forestry Association. Hagenstein figures there are 140 chippers installed, converting wood leftovers to chips to the tune of over one-half billion board feet of timber per year, equivalent.

300 Uses for Hardboard

(Continued from page 152)

Nameplates

Outdoor theatre construction

Packaging
- box construction
- crating, furniture
- electrical equipment containers
- saw shipping containers

pads, desk
pallet boards
panels, interior
- tote tray panels

partitions
photo equipment
plates, kick
- push
- switch
- placques

porch ceilings
- columns
- storm
- sun

portable partitioning
prefabricated units
printing equipment
- feeder platform tops
- housing panels
- mailing table tops

Racks, garbage can
- magazine
- shoe
- time card

railroad industry
- diesel locomotive cab liners
- direction signals
- journal box dust guard
- locomotive instrument mounting panels
- Pullman berth headers
- refrigerator car liners

refrigeration
- air conditioning instrument control panels
- beverage cooler sliding door panels
- breaker strips
- quick-freezing locker lids
- refrigerator panels
- walk-in refrigerators

Screens, folding
- movie

shelving, instrument shelters
shingles
shipping supplies
shovels, snow
shower stalls
shutters
siding
signs, commercial
- traffic

soffits
sports equipment
- basketball backboards
- basketball floors portable
- football gridiron yardage markers
- golf ball cleaning stands
- golf practice range flooring
- packboard frames
- paddleboards
- scoreboards

ski boot racks
stands, smoking
stationers' supplies
store fronts

Table construction
tanks for sweepers
templates
theatre lobbies
toys & games
- checkerboards
- chess boards
- dollhouses
- game boards
- ping pong paddles
- ping pong tables
- sand box
- shuffleboard
- toy chests

trays, bed
- beverage
- cafeteria
- cocktail table

treads, stair
trim
troughs, light

TV backs
- cabinets

Underlayment
underside of eaves

Valances, window

Wainscots
walls, interior
- interior ornamental finish

windows, storm
work surfaces

Tree Farms

(Continued from page 215)

fire; in harvesting trees for stand improvement; and in marketing harvested wood to obtain highest utilization.

Program is Flexible

Actually about all of the functions normally carried on by an industrial forester have been performed on tree farms—even the small tree ones. The program is not stereotyped. Its flexibility contributes to successfully working out each case according to local conditions and circumstances involved.

The certifying agencies may suggest sources of foresty counsel for the tree farmer, or directly assist as consulting forester. Furthermore, these organizations have members which "spread the gospel" and aid wherever possible, they in turn lending assistance. Some firms provide small timber owners of the area with the facilities of the company forestry staff.

The Tree Farm Program sponsored in California by the Western Pine Association and the California Redwood Association is contributing in no small way to better forest practices. California is now the leader in western pine region tree farms, both as to acreage—(about 1,500,000 A) and number (around 120). This is about 20% of the private timber area in the state. Redwood tree farms number at least 14 with over 100,000 acres.

The tree farm movement is growing in California and at this time there are many hundreds of thousands of acres that are qualified to join the tree farm movement and undoubtedly will.

European Fibreboard Mills

The first Swedish fibreboard ("wallboard") mill was opened in 1934, and by 1938 there were 14 producing mills, turning out a large volume of board. Production in Europe's 70 mills is around 600 million square feet (excluding Iron Curtain countries). Five mills are producing in Britain, 18 in Sweden, 10 in Finland and six in Norway. (From The Timber Trades Journal).

WEIGHTS OF VARIOUS SIZE AMERICAN LOGS AND SPECIES IN M.B.F.

(Excluding those Log Weights Listed in the Table of Western Species)

Source: U.S. Department of Agriculture, Farmers' Bulletin No. 1210 "Measuring & Marketing Timber."

Calculated Weight in pounds per 1000 b.f. Doyle log rule

Species	Logs 12" diameter	Logs 18" diameter	Logs 24" diameter
Softwoods—			
Fir, balsam	10,400	7,200	6,100
Hemlock (eastern)	11,200	7,800	6,600
Pine, loblolly	12,400	8,700	7,400
Pine, longleaf	11,100	7,700	6,500
Pine, Norway (red)	9,700	6,800	5,700
Pine, shortleaf	10,400	7,200	6,100
Pine, slash	12,200	8,500	7,200
Pine, sugar	11,500	8,000	6,800
Pine, white	9,000	6,300	5,300
Redwood	8,900	6,200	5,200
Spruce, eastern	7,700	5,400	4,600
Hardwoods—			
Ash, white	11,100	7,700	6,600
Aspen (popple)	10,800	7,600	6,400
Basswood	9,500	6,600	5,600
Beech	12,700	8,900	7,500
Birch, yellow	13,200	9,200	7,800
Cherry, black	10,500	7,300	6,200
Chestnut	12,600	8,800	7,500
Cottonwood	10,700	7,500	6,300
Cypress, southern	11,800	8,200	7,000
Elm, white	11,300	7,900	6,700
Elm, slippery	12,600	8,800	7,400
Gum, black	10,400	7,200	6,100
Gum, red (sweet)	10,600	7,400	6,300
Hackberry	11,300	7,900	5,200
Hickory	14,700	10,300	8,700
Locust, black	13,400	9,300	7,900

WEIGHTS OF VARIOUS SIZE WESTERN LOGS AND SPECIES IN M.B.F.

Weight in pounds per 1000 b.f., Scribner Decimal C Log Scale

Species	Small green logs 16" diam.	Medium green logs 30" diam.	Large green logs 50" diam.
Softwoods—			
Port Orford cedar	7,050	5,411	4,997
Western red cedar	5,289	4,058	3,748
Douglas fir	7,446	5,711	5,276
Lowland white fir	8,621	6,613	6,108
Noble fir	5,878	4,509	4,165
Western hemlock	8,033	6,162	5,691
Lodgepole pine	7,641	5,862	5,414
Ponderosa pine	8,817	6,864	6,247
Sitka spruce	6,465	4,960	4,582
Hardwoods—			
Red alder	9,013	6,914	....
Oregon ash	9,013	6,914	....
Black cottonwood	9,013	6,914	....
Bigleaf maple	9,209	7,064	....
Oregon white oak	13,519	10,370	....
Maple, sugar	12,900	9,000	7,600
Maple, red	11,900	8,300	7,100
Maple, silver	10,500	7,300	6,200
Oak, red	14,800	10,300	8,800
Oak, white	14,400	10,000	8,500
Poplar, yellow (tulip)	8,800	6,100	5,200
Sycamore	12,000	8,400	7,100
Tupelo gum (bay poplar)	15,200	10,600	9,000
Walnut, black	11,900	8,300	7,000
Willow	11,800	8,200	7,000

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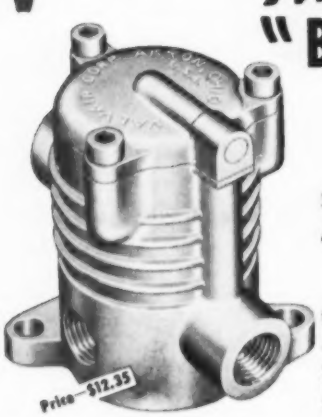
VALVAIR'S *New* "Baby BIG"



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Wisconsin Tree Farm Program

Latest figures released by Harold S. Crosby, Secretary, Wisconsin Forest Industries Information Committee show 628,127 acres of private certified industrial forest land on which has been planted 47,322,000 trees included in 28 counties. Of this acreage about 130,000 acres is held by sawmills, the balance is owned by pulp and paper companies.

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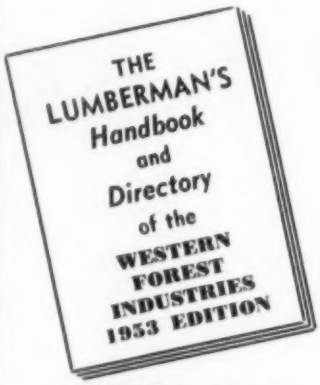

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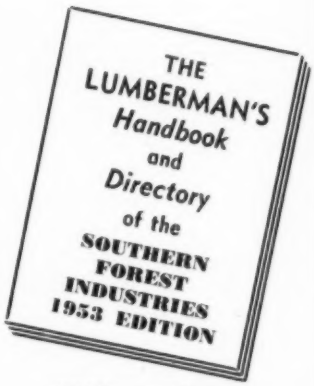

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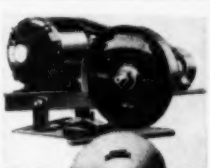
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150	720	1K	GE	440	Sleeve
150	1200	K (tri-clad)	GE	440	Sleeve
150	1200	K (tri-clad)	GE	440	Sleeve
125	600	1K	GE	440	Sleeve
125	1200	KT	GE	440	Sleeve
100	900	KT	GE	2300	Sleeve
100	1200	KT	GE	2300	Sleeve
100	1200	1K	GE	440	Sleeve
100	900	KT	GE	440	Sleeve
100	720	Drip Proof	FM	440	Sleeve
100	1800	KT	GE	440	Sleeve
100	1800	KT	GE	440	Sleeve
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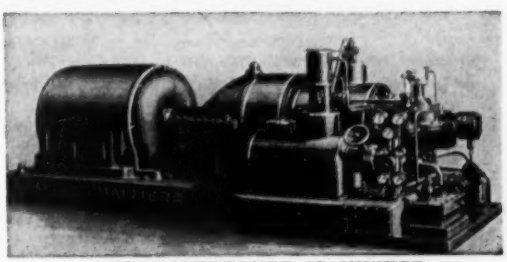

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1—Woods #404C, 6"x24", belt driven, 6 knife heads, feed table.

1—American 4x6 moulder, 4 knife heads, ball bearings, belt drive.

1—Fay & Egan 4x8 moulder, 4 knife heads, belt drive.

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1—Mershon 60", vertical, 16" roll opening, V-belt drive.

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2—Yates #345-54" twin horizontal band resaws.

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1—Peters 6x48, 3 saw, right hand stub edger.

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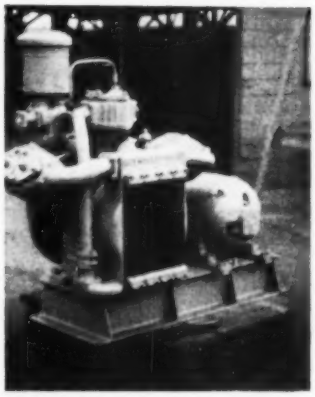

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New General Machinery Co., 4 x 36, Stub Edger, 4 movable saws

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1 Mershon, 66 inch Vertical, with filing room equipment, used saws, motor

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Yates-American M 7 Side Head Grinder

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1 Berlin #108, 8 x 16, square head
1 American #20, 4 x 8, square head, motor and starter
1 Yates-American A66, 15x6, 8 knife, belt driven, profile, ball bearing
1 Woods 404B, 6 x 15, 8 knife profiles, belt driven, ball bearing
1 Woods 412, 6 x 25, 10 knife, belt driven, ball bearing
1 American 77A, 6 x 15, plain bearing, profiles.

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1 #213 Yates-American Glue Jointer, motorized
1 Mattison #244 Straight Line Cut Off Saw
1 Berlin #196 24" Jointer
1 Oliver Straight Line Swing Saw
1 American Double Surfacer 26", square head
1 Diehl #750 Straight Line Ripsaw
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1 New Ross Series 91-6144, 42 x 48 package
1 Reconditioned Ross Series 90-7956, 52 x 67 package
2 Reconditioned Ross Model 11-6144, 42 x 48 package
3 Used Gerlinger Model SMH 4560 42 x 48 package
1 Reconditioned Ross Series 70-6657, 52 x 54 package
1 Reconditioned Ross Series 70-5445, 42 x 42 package
1 Reconditioned Hyster MH-6657, 52 x 54 package
1 Reconditioned Hyster MH-4560 42 x 48 package
1 Reconditioned Hyster Model DP4-5445, 42 x 42 package
1 Reconditioned Hyster Utility, Model CP-4565, 42 x 53 package

LIFT TRUCKS

1 Hyster KT, 14' Lift, 10,000 capacity
1 New Ross Model 12, 18000 capacity, 17'6" lift
1 Reconditioned Ross Model 12, 16000 capacity, 18'6" lift
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1 American 77-A 8 knife, round head, double profiles, ball bearing top, bottom & side heads., 6" x 15" capacity.
1 Tower 2 saw 8-ft to 16-ft end trimmer.

EDGERS

1 4" x 30" Portland, table type.
1 4" x 40" 4-saw with motor.
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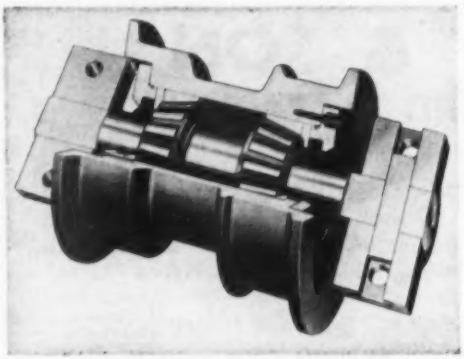

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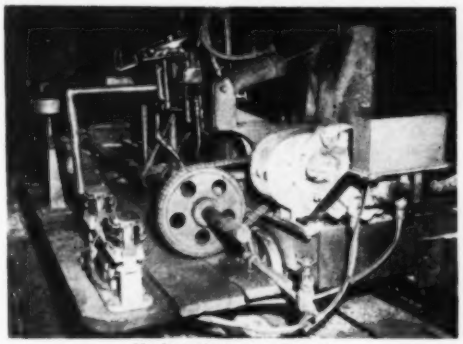

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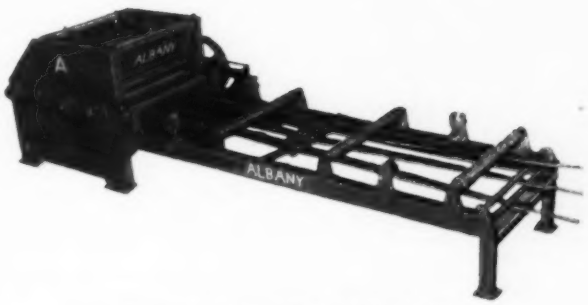

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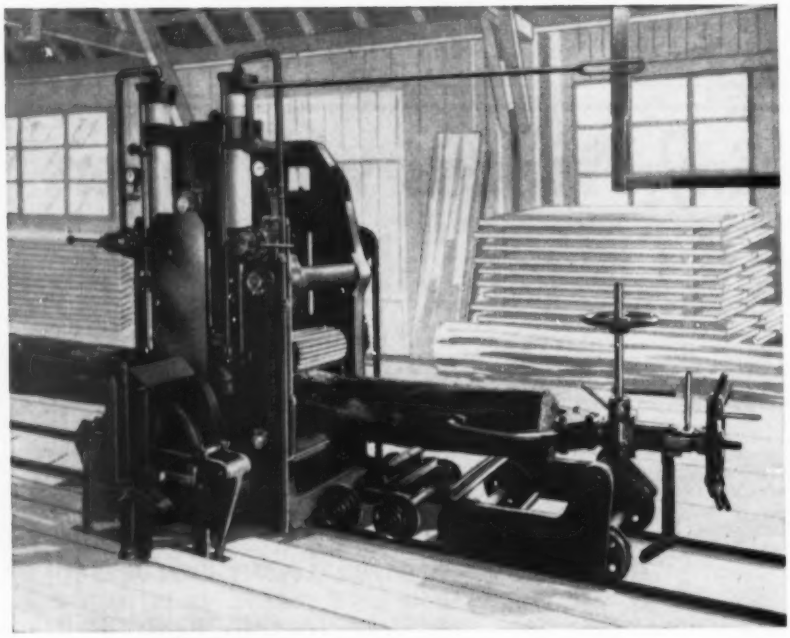

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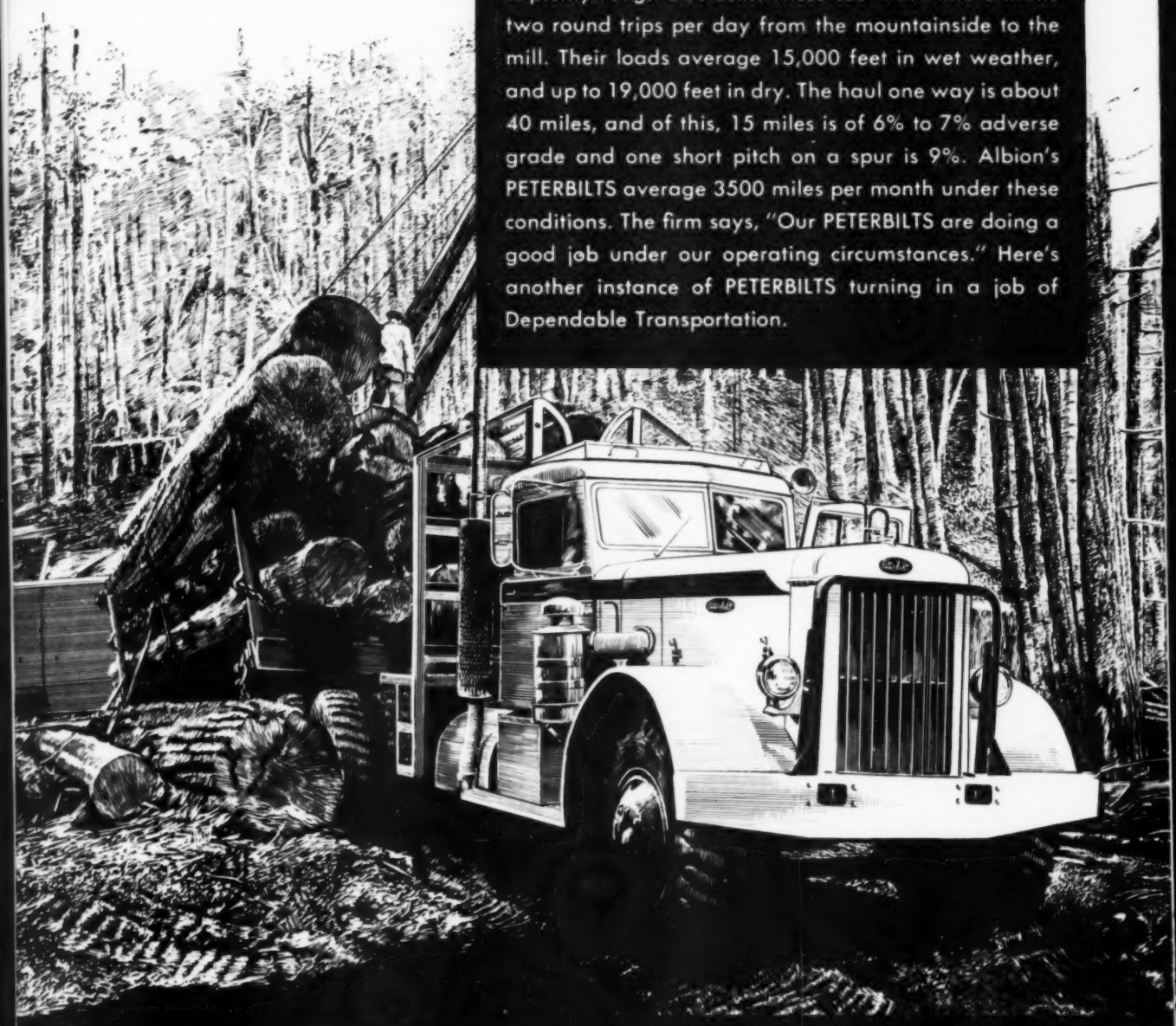
Peterbilts Doing Good Job

This is one of four PETERBILTS belonging to Albion Logging Company of Santa Rosa, California. It is currently running out of Ukiah on an off-the-road operation that is plenty rough on trucks. These four PETERBILTS make two round trips per day from the mountainside to the mill. Their loads average 15,000 feet in wet weather, and up to 19,000 feet in dry. The haul one way is about 40 miles, and of this, 15 miles is of 6% to 7% adverse grade and one short pitch on a spur is 9%. Albion's PETERBILTS average 3500 miles per month under these conditions. The firm says, "Our PETERBILTS are doing a good job under our operating circumstances." Here's another instance of PETERBILTS turning in a job of Dependable Transportation.



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